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MEDICAL JOURNAL OF AUSTRALIA

(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association.

VOL. II.—4TH YEAR—No. 5.

SYDNEY: SATURDAY, AUGUST 4, 1917.

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No. 5.

CHRONIC ULCER OF STOMACH AND DUODENUM: SURGICAL TREATMENT AND END RESULTS.¹

By H. B. Devine, M.S.,

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I have always felt that a surgeon should be guided by a periodical review of the results of his own work. The impartial analysis of his failures and successes must prove of great educational value to the operator, and of benefit to the future patient. It is in this way that the most valuable personal experience may be gained. By filing histories under a surgical classification and using the card system, such analysis becomes very simple. In the hope that some of my failures may be of value to others and originate useful discussion, I am presenting to you to-night the results of a series of 38 cases of chronic ulcer of stomach and first part of duodenum. These were operated on during the last five years. A few of the cases are recent, and only of value for the immediate result. One patient of the series died three days after operation from pneumonia. The immediate mortality was therefore 2.7%.

Gastric has not been dissociated from duodenal ulcer, because the stomach and first part of duodenum are both developed from the fore-gut and hyperchlorhydria is the main cause of ulcer in both. In culling these from the other stomach histories, I was impressed by the general and usually dramatic success of the operation where there was a definite demonstrable chronic stomach lesion. They were operations that the surgeon looked back to with pleasure, and the patient with gratitude.

Clinical Confusion of Ulcer with Other Stomach Diseases.

In contrast with this there were cases very often clinically diagnosed as ulcer, but found to be hyperchlorhydria (a neurosis or reflex from gall-bladder or appendix disease) or chronic gastro-mesenteric ileus, loose kidney or uterine trouble. These, in about 75% of cases, gave good results where an obviously bad appendix or diseased gall-bladder, etc., was dealt with. Occasionally there was not found any demonstrable intra- or extra-gastric lesion. In these cases, sometimes what we might call a "concession appendicectomy or gastro-enterostomy" was done, perhaps in the latter case in view of the possibility that an ulcer was present but could not be felt. These patients were, as a rule, not satisfied with their operation.

About 35% of cases sent into hospital clinically diagnosed as such were not ulcer. These patients had typical or fairly typical ulcer histories, often haematemesis. They belonged to the group of extra-gastric lesions just mentioned. Many medical cures of ulcer I feel sure belong to this class. It is, therefore, very difficult, I think, to estimate the value of medical treatment of ulcer.

¹ Read at a Meeting of the Victorian Branch of the British Medical Association on July 4, 1917.

Presupposing that ulcer can be diagnosed from this latter group, when should an ulcer be considered surgical and when medical? This is in some instances difficult to decide. I think patients should be treated surgically

- (1) when the ulcer has recurred several times in spite of medical treatment—a sign that it has become chronic;
- (2) when the ulcer has produced secondary effects in the stomach, as pyloric or hour-glass stenosis, etc.; and
- (3) when chronic ulcer is associated with persistent or dangerous haemorrhages. (In these cases "food pain" and "food ease" are well marked.)

I think cases are better treated medically

- (1) when the symptoms are of short duration (in this case the ulcer is probably soft and acute);
- (2) when the haematemesis is associated with not very marked "food ease" and "food pain" (in this type no ulcer may be found, but a general oozing of blood called by Hale White "gastrostaxis"); and
- (3) when the stomach affection is apparently secondary to a general lack of resistance or to general disease.

One of the greatest difficulties in the cases now reported was to "draft out" the "surgical ulcer" from a small number of cases which we may call the "indefinite stomach" group: these gave stomach symptoms without any discoverable surgical lesion. If an attempt be not made to separate these, a class of case may be operated on unsuccessfully for ulcer diagnosed simply because they are so refractory to any other treatment. The confusion of ulcer with the "reflex hyperchlorhydria stomach" group was not so important, because these cases could be cured by operation.

The Surgical Treatment of the Surgical Ulcer.

Both Deaver and von Eiselsberg say that "the proper treatment of ulcer should only be decided when the abdomen is opened."

In reviewing my histories I find that the more thoroughly I have investigated the case prior to the operation, the more satisfactory has been the surgical result, because the Röntgen ray examination gave just exactly the pathological information needed in order to decide which operation should be done. This knowledge could not always be obtained at the coeliotomy. In my early operations without previous X-ray investigation, there was an uncertainty of action begotten of incomplete knowledge of the functions of the stomach in its diseased state. This was reflected in the post-operative history of the patient. I would, therefore, say that the two essentials in treatment were: (1) A careful pre-

operative diagnosis. (2) A careful operative diagnosis.

The surgery employed might be classified under four heads. The management and consideration of

- (1) the ulcer itself,
- (2) the secondary effects produced by ulcer,
- (3) the cause of the ulcer, and
- (4) the general resistance of patient.

Radiography a Surgical Aid in Pre-operative Diagnosis.

The nature of the operation therefore depended on the exact living pathology present. The correct diagnosis of this was the difficult part of the treatment.

Minor degrees of pyloric stenosis cannot always be diagnosed at the operation, whereas they are quite obvious on the X-ray screen. I have seen stomachs on the screen so dilated that they filled a large part

of the abdomen. These same organs I have seen at operation contracted and retracted, so that the extreme dilatation and its significance would not have been fully appreciated. The greater part of the dilatation and hypertrophy of a diseased stomach takes place at the fundus. This retracts after a careful preparation for operation. This retracted fundus can be drawn down at

the operation from under the left thorax like a piece of elastic. On the other hand, I have seen large dilated stomachs which were only atonic stomachs blown up with air. These do badly if they are treated by operation.

I have found it necessary in the treatment of a certain class of chronic ulcer by resection to distinguish between the minor degrees of organic pyloric stenosis and pyloric spasm. In this again X-ray examination helps. An alkaline and, after an interval of several days, an ordinary barium sulphate meal is given. The difference, or agreement, of the emptying times will indicate the nature of the pyloric lesion.

The question of a two-stage partial gastrectomy is often best decided after a screen and a clinical examination. When the knowledge thus obtained is placed before the patient, his permission for this may usually be obtained; whereas, if staging is resorted to without consulting the patient before the operation, he may refuse the second stage, because

he has improved, or because he thinks it is unnecessary zeal on the part of the surgeon.

I once was present at a post-mortem examination of a patient who had died from post-operative vomiting following an iso-peristaltic gastro-enterostomy. This was due to a partial jejunal obstruction. A hugely dilated and hypertrophied stomach had retracted so much that the situation and direction of the stoma had changed, and the jejunum had angulated at the site of the anastomosis. Since, I have always considered in a screen examination where the stoma should be placed and the length of the jejunal loop.

If an ulcer can be seen on the screen it is chronic and penetrating, and needs resection. Where the diagnosis of an ulcer depends entirely on the recognition of a

spasm of the circular muscle and delayed emptying time, the ulcer may be superficial, recent or small, and if the situation is favourable, gastro-enterostomy may suffice. To be surgical an ulcer of this type should have failed to respond to medical treatment.

*Impalpable Ulcer
Not Operated.*

It is in cases of this latter type that occasionally no ul-

cer may be observed at the operation, that is, if the surgeon does not open the stomach. Relying on the clinical symptoms of ulcer, he may elect to perform gastro-enterostomy. Failing this, he does what we may call a "concession appendicectomy." For example, a case in Group A, Column d, was explored in London, by a very good man, five years ago, for symptoms of gastric ulcer. No ulcer was found, and an appendicectomy was performed. The same symptoms continued, and increased in severity. At the operation a very chronic ulcer was found, with hour-glass stenosis. Apparently at the first operation a recent ulcer was not palpable, and the appendix, as often happens, was considered by the surgeon a sufficient cause for the ulcer symptoms.

Operation for Supposed Ulcer.

On the other hand, the fear of missing this kind of ulcer leads to unnecessary gastric operations for supposititious ulcers, often cases of hyperchlorhydria. One of my early patients, a female, was sent over from the medical ward to be operated on for supposed gastric ulcer. The clinical history was typical of ulcer. There was no X-ray examination. She

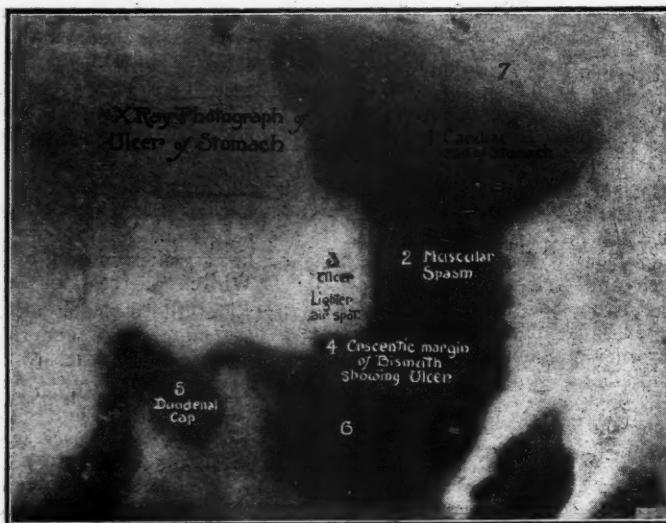


Fig. I.

had a very dilated, distended stomach, but no obvious ulcer. On the assumption that an impalpable ulcer was present, a gastro-enterostomy was performed. She died seven days later. At the autopsy a thin-walled, dilated, probably neurological stomach was found. There was no union at all at the suture line. There was no ulcer. This taught me not to meddle surgically with stomachs without a certain diagnosis of ulcer. An unnecessary gastro-enterostomy converts a normal into an abnormal stomach, and only makes worse a neurological or other condition simulating ulcer, for which it might be done.

Nowadays I want some definite objective sign of ulcer before doing anything, and in nearly every one of this series of cases it has been forthcoming on the X-ray screen. When there was doubtful X-ray evidence I found no ulcer.

The X-ray evidence confirmed by operation was as follows:—

(1) In seven cases the ulcer at the lesser curvature could be clearly seen as a crescent-shaped bismuth shadow niche, associated often with a light air spot and a spasm of the circular muscle in the vicinity of the ulcer. The emptying time was prolonged. Figs. I. and II., exemplify this type.

(2) In three cases the ulcer, as above, was associated with organic hour-glass stenosis, as Figs. II. and IV.

(3) Fig. IV. is representative of a group of two cases. It shows a very dilated and hypertrophied stomach, which nearly filled the patient's abdomen. This was secondary to duodenal stenosis following duodenal ulcer. Such extreme dilatation is rarely caused by malignant disease, and is generally due to ulcer. In cancer the patient dies before the stomach can become so dilated.

(4) In ten cases of chronic stenosing prepyloric ulcer, the dilatation was not as extreme as in last group, and often on the screen the prepyloric part appeared to be amputated. (See Fig. V.)

(5) Soft ulcers and erosions showed spasm of the circular muscle and delayed emptying time. Some

of these were not operated on, and are not included in this series.

(6) There was an altered cap in three cases of duodenal ulcer.

Operation Diagnosis.

At the operation the observation that has the most important bearing on treatment is the situation of the ulcer. The surgeon must also note the chronicity and the presence of adhesions, and examine the patency of the pylorus in relation to the hypertrophy and dilatation of stomach. In a few cases I found it extremely difficult to decide, from a macroscopic examination, whether a chronic ulcer had become malignant. Of course, it is easy to have a microscopic section made at the operation table; but I think wide resection is as necessary for such an ulcer as for the carcinomatous ulcer.

I have seen cases of ulcer associated with marked tumour formation, hard and with secondary gland formation, replaced as cancer. The patient was given a hopeless prognosis, but got well with a simple gastro-enterostomy. Two of my own cases were apparently simple ulcers, with some inflammatory induration. In one a partial gastrectomy was done, and microscopic examination showed early malignancy. The other, after a first stage gastro-enterostomy the patient refused the proposed second stage partial gastrectomy, and died of malignancy two and a half years later.

There is a group of chronic ulcer cases in which it is impossible to say from a naked eye appearance whether the ulcer is simple or beginning to be carcinomatous. Where there is the least suspicion, the

patient over 40 or the history long, the surgeon's duty is to resect the ulcer. Therefore, an ulcer may be

- (1) carcinomatous, though apparently innocent,
- (2) carcinoma may subsequently develop in the ulcer site, or
- (3) marked inflammatory induration may simulate carcinoma.

I have found the following clinical signs helpful:
Ulcer.

- (a) Induration is flexible.
- (b) Glands firm.
- (c) Regular situation of ulcer.
- (d) Edema of gastro-hepatic omentum.
- (e) More marked adhesions.

The signs of ulcer I found at operation were as follows:—

- (a) A small puckered peritoneal scar on stomach or duodenum.
- (b) "Back washed omentum," i.e., opening the abdomen the omentum is seen to be more evident around the stomach.
- (c) Edematous spot in gastro-hepatic omentum.
- (d) Adhesion; perigastric adhesions.
- (e) Local induration.
- (f) A red patch of vessels on the peritoneum over the ulcer.
- (g) Spot of scar tissue.
- (h) Enlarged gland in vicinity.

Carcinoma.

- (a) Induration is inflexible.
- (b) Glands hard.
- (c) Irregular situation of ulcer.
- (d) Outlying scattered nodules.
- (e) Tumour formation.

himself in living pathology, which is so different from the text-book pathology, and so important in the choice of operation. Decisions, momentous to the patient, based on the disease present, have to be made with very little time for calm diagnostic reflection. It is, therefore, advisable to clear the ground as far as possible by pre-operative diagnosis. There is also this additional advantage, that the repeated correction of a careful X-ray and clinical diagnosis by the operation must build up experience in living pathology and improve operation diagnosis, and thus make for quick and correct decisions.

In reviewing my stomach operation, it seems to me that exact individualization of cases was attended with success in this gastric surgery, the pathological condition present being accurately observed and the right operation chosen.

The routine operation for any stage or kind of ulcer, the operation where no gross pathology could be observed, and doing too much at one operation, have all often mitigated much of the success possible in gastric surgery.

The Cause of the Ulcer.

After dealing with the ulcer, I have always diligently explored the whole abdomen for any causes of hyperchlorhydria in the appendix, gall-bladder, etc., or for any causes of intestinal stasis, such as ileal kinks, etc., feeling that these often precede ulcer. In a small proportion of the cases have I

In a few instances I found it necessary to open the stomach.

A great necessity for the surgeon is to educate

found a cause. One case of duodenal ulcer was associated with gall-stones; three gastric ulcers were associated with chronic appendicitis, and in

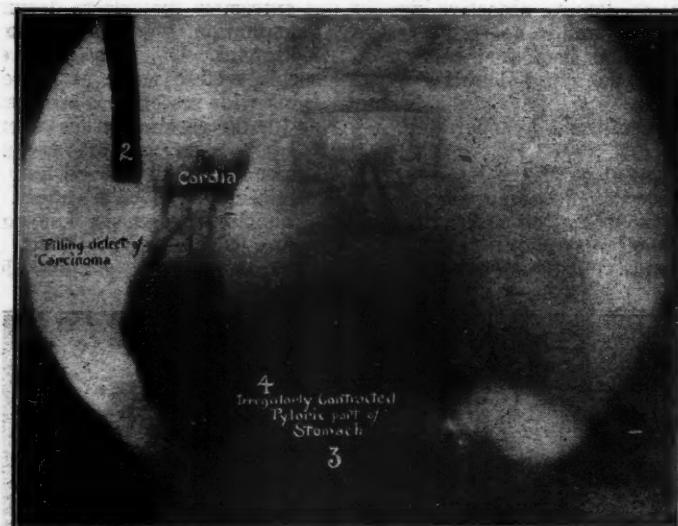


Fig. III.
Filling Defect of Carcinoma, showing the difference between this condition and that of benign ulcer of the stomach, as seen in Figs. I. and II.



Fig. IV.

one case there was an ileal kink, probably the result of chronic appendicitis. I wonder whether in the enthusiastic pursuit of these coincident, associated or causative lesions, we do not forget the more "every-

Posterior wall of stomach, cardiac portion—1 case.
Post-pyloric—4 cases.
Duodenal—4 cases.
I have called the ulcer of the first part of the

Operations Employed: End Results.

Group A.—Resection of Ulcer.

Operation.	Situation of Ulcer	Secondary Effects.	No. of Cases.	Immediate Mortality.	Time Since Operation.	End Results.
(a) Resection of chronic ulcer and of associated acute "contact" ulcer	Posterior Wall, Cardiac Portion	None	1	0	3 months	Well
(b) Wide resection of ulcer	Lesser Curvature	None	6	0	From 3 to 4 years	Well
(c) Wide resection of ulcer and of associated hour-glass contraction; gastroplasty	Lesser Curvature	Hour-glass Contraction	3	0	3 years 2 years 5 years	Well
(d) Wide resection of ulcer with gastro-enterostomy and gastroplasty	Lesser Curvature	Hour-glass Contraction and Pyloric Stenosis	1	0	5 years	Well

Eleven cases. No deaths. All well.

day" and perhaps more potent causes of acute, and therefore of its sequel, chronic ulcer, such as dental, tonsil or nasal sepsis, dietetic faults, vascular disease (small artery occlusion), or general constitutional causes. For this reason I am an advocate of transferring ulcer patients after operation to the physician for continued medical treatment.

The Resistance of the Patient.

Stomach ulcer surgery lends itself to, and often requires, two-stage operations. The first stage, gastro-enterostomy, remedies the malnutrition of the patient; the second provides for removal of the ulcer. The surgeon must consider the patient's general condition, and balance it against the operation proposed, in order to decide whether staging is necessary. On this decision may hang the life of the patient.

Situation of Ulcers Found at Operation.

Lesser curvature—12 cases.

Pre-pyloric—16 cases.

Posterior wall of stomach, pyloric portion—1 case.

duodenum post-pyloric ulcer, because it lends itself to more radical surgical treatment than the ulcer of the duodenum, which is more remote from the pylorus.

In sub-group (d) the case mentioned was an ulcer about the size of half-a-crown, which had penetrated the left lobe of the liver for 0.6 cm. ($\frac{1}{4}$ inch). It was very difficult to dissect out, and more difficult to suture, because of its nearness to the cardiac orifice. These old ulcers seem to cause a contraction of lesser curvature, in the same way as they cause hour-glass formation. They thus appear to creep towards the cardia. Professor Allen shows a specimen of one of these ulcers in which the vagus nerve is involved in the ulcer edge.

In this patient the ulcer was widely resected; a gastroplasty was done, and also a gastro-enterostomy. The patient was very ill after the operation, which was probably too extensive for one sitting. A two-stage operation would have been safer, especially as the patient had been ill for years, and was very emaciated.

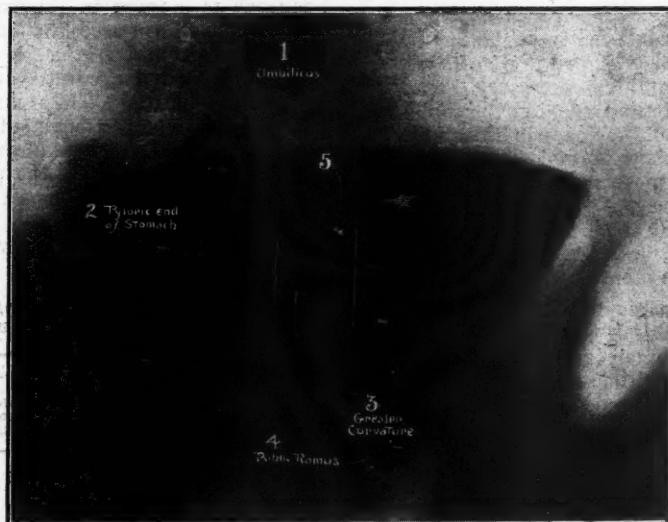


Fig. V.

In sub-group (a) a chronic ulcer was situated far over in the cardia, and was firmly adherent to the posterior wall of lesser sac of peritoneum. When the stomach was opened, preparatory to removal of the ulcer, on routine inspection of the interior of the stomach, another ulcer was found. This was acute, and probably due to contact—the so-called "kissing ulcer." It could not be detected by external palpation of the stomach. They were both resected. The diagram illustrates the situation and the method of resection (see Fig. VI.).

In the case of sub-group (c) there were ulcers with hour-glass constriction. The diagram shows an X-ray tracing (Fig. VII.) of a stomach before operation in one of these cases. Fig. VIII. is a photograph three years after the operation. It shows a small, quickly-emptying stomach. The patient is now 12.75 kilos (2 stone) heavier, and very well. This exemplifies the other two cases.

The patients in Group A have all been communicated with, and they show no symptoms or signs of ulcer, and they have no indigestion. The ulcers of this group were very chronic, very callous and of the relapsing type. The general causes had long since disappeared. Their persistence as ulcers was due to local causes. Of these, the most potent probably was the lowly vascular, fibrous walls, with low local immunity, and the irritant action on these of an excess of hydrochloric acid. The gratifying results in these cases are probably due to the very local character of the ulcers, and the very local treatment, and goes to prove that, where lesser degrees of organic stenosis can be eliminated, ulcer resection will suffice without gastro-enterostomy. W. Mayo says in his last paper on ulcer that "resection should be accompanied by gastro-enterostomy." This he maintains is necessary, because excision, especially if limited, impairs the mobility of the stomach. Most of the cases in this table have been examined, and show normal mobility. The resection of ulcer or of ulcer and associated hour-glass constriction in these cases was wide, and in all cases, as no clamps were used, the interior of stomach could be and was explored, and a second ulcer was only found in the one case mentioned.

Although these resections looked formidable and fearsome operations, and were often tedious and difficult, because of extensive adhesions and much suturing in difficult positions, yet I was surprised to find how little shocked and how comfortable the patients were next day. In my own work I had come to look on a resection as a safer and less distressing operation to the patient, and also a more certain cure, than gastro-enterostomy.

Liek thinks that the decisive factor in the choice between resection and gastro-enterostomy is the danger of the operation. He says the mortality of resection is considerably higher than that of gastro-enterostomy. Kuettner, in 1914, found for resection a 20% mortality and for gastro-enterostomy only 4%. Statistics gathered from the literature of 465 cases show a mortality of 10% for resection, and for gastro-enterostomy from 3% to 6%.

Wide resection of ulcer entails a very long suture line in the stomach wall, which is very vascular. If no clamps are used, each vessel is tied as it bleeds; where clamps are used, these vessels may not be controlled by the suture, and may subsequently bleed. Much of the post-operative shock in resection may

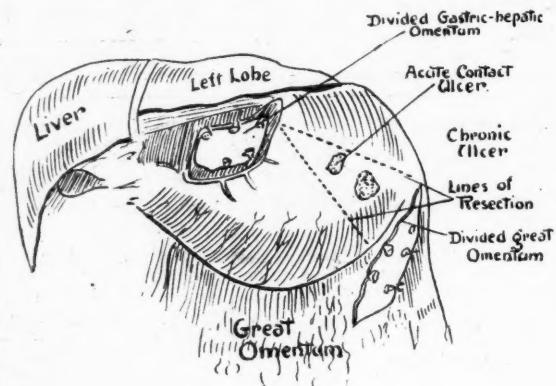


Fig. VI.

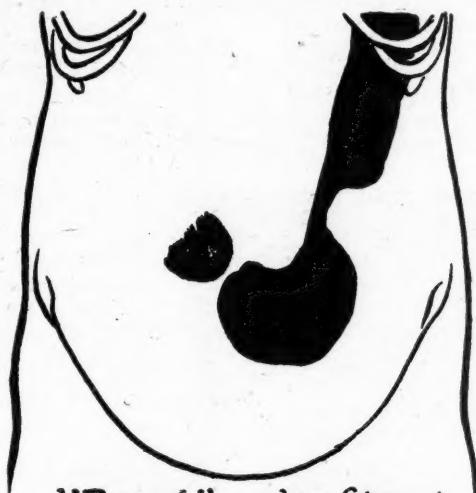
be due to haemorrhage in this way, so that I suggest that not using clamps minimizes the shock. The Mayos advance the objection against resection that they have had bleeding several days afterwards, and they say this has been found to come from areas devoid of mucous membrane, really auto-digestion of the *muscularis*. They, therefore, advocate the cauter to destroy the ulcer crater, and thus seal the mucous membrane to the *muscularis*. I find that where clamps are used, the mucous membrane, which is very soft and friable, is crushed and retracts, and is often not accurately sutured, or devitalized edges are sutured. These may undergo auto-digestion. Occasionally I have sutured the mucous membrane separately. These ulcer resections are so wide that the suture involves the whole circumference of the stomach, except perhaps a small area in the vicinity of the greater curvature; they thus fall very little short of a transverse or sleeve resection of stomach (see Figs. XI. and XII.).

Group B.—Gastro-enterostomy with "Binding Up" of the Ulcer with Free Fascial Transplant.

Situation of Ulcer.	Secondary Effects.	No. of Op's	Im-mEDIATE Mortality	Time Since Op'r'tn	End Results	Screen Examination.
Pre-pyloric	No stenosis	3	0	3 y'rs	Well	—
Post-pyloric or first part of duodenum	No stenosis	3	0	2 y'rs 2 y'rs 2 y'rs	Well	One done 2 years showed slight patency. The others were still closed.

In resections, I aim at getting beyond the area of induration, and lymph vessel obstruction, so as to

leave no spot which would be a *locus minor resistenciae* for a future ulcer to form. For this reason I have hesitated to use the cautery, feeling that with



X-Ray of Hourglass Stomach Before Operation

Fig. VII.

this I would account for the crater of the ulcer and leave the much larger and variable induration area.

This operation (see Fig. IX.), as subsequently described, was only employed where a patient was in a low condition from repeated haemorrhages from the ulcer, where a one-stage operation only was permitted, and where the ulcer was of not long duration, and therefore not likely to become cancerous. In some of the duodenal ulcers in this series melæna was the dominant feature. I have

seen such patients go on bleeding after a gastro-enterostomy, even though there was a very large stoma acting well. This is all the more likely to happen if there is no associated duodenal or pyloric stenosis. The object in using the transplant is by direct pressure on the ulcer to prevent further bleeding, and by closing the particular part of the lumen which bears the ulcer to remove this latter from the influence of the stomach secretion and thus ensure healing. At the same time it brings about pyloric closure, and though this is only a tertiary effect, it is very important in the treatment. It will be seen in Group C (1) that gastro-enterostomy for ulcer associated with pyloric stenosis is more successful than where that operation is performed for ulcer without any stenosis. On the screen food may be seen to go through a patent pylorus rather than through the gastro-enterostomy stoma. A gastro-enterostomy stoma is only an artificial fistula; this will heal like a gall-bladder or any other fistula, if the normal channel is still open. For this reason it is advisable sometimes to bring about pyloric closure artificially, and make the new opening permanent (Fig. X.). I am not satisfied yet that a fascial transplant would be sufficiently permanent to be used primarily for pyloric closure, and I would rather rely on a pylorectomy or a new operation for duodenal ulcer, which will be described under "Technique."

One case was due to subsequent haemorrhage in a duodenal ulcer, and one to carcinoma developing in the site of the ulcer. One was an ulcer of the lesser curvature, with a patent pylorus. In this the ulcer symptoms persisted and became worse. Rodman says of gastro-enterostomy that "the end results are frequently disappointing to the surgeon and disastrous to the patient, and a large number of these operations which are satisfactory to the surgeon develop cancer in later years." This small series goes to prove that gastro-enterostomy on well-selected cases is still a most useful remedial measure for ulcer. Much of the abuse heaped on the opera-

Group C.—Gastro-enterostomy.

Operation.	Secondary Effects.	Situation of Ulcer.	No. of Cases.	Immediate Mortality.	Time Since Operation.	End Results.
(1) Gastro-enterostomy with associated stenosis	Pyloric Stenosis	Pre-pyloric	7	0	From 5 to 1 years	1 died of carcinoma; rest well
		Duodenal	2	0	5 years	1 died four years later of sudden hemorrhage
(1) Gastro-enterostomy without stenosis	No Pyloric Stenosis	Pre-pyloric	1	0	4 years	Well
		Duodenal	2	0		Well
		Posterior Wall	1	0	4 years	Well
		Lesser curvature	2	0	4½ years	1 not improved 1 well

Fifteen cases. No deaths. Three end failures.

tion arises, I think, from the neglect to recognize the necessity for such careful choice.

It will be observed that one patient with duodenal ulcer died four years after operation from a sudden haemorrhage. I know of a similar occurrence eight years after operation, and I have already mentioned a case which went on bleeding almost immediately after a gastro-enterostomy. This latter case was cured by adding in a second operation pyloroplasty, thus bringing about pyloric exclusion. It would, therefore, seem that, when it is necessary to do a gastro-enterostomy for a chronic duodenal ulcer, it is better to arrange that the stoma should be permanent, and the site of the ulcer should be removed for all time from irritation; otherwise, as we have seen, the ulcer may recur even after many years.

As a remedy for this I am suggesting an operation for duodenal ulcer (see Fig. XV.) which, I think, is technically simple and physiologically perfect. In this operation the stomach is cut across close to the pylorus, the distal end closed and the narrow proximal end of the stomach neatly implanted in the upper part of jejunum. This ensures permanent pyloric occlusion and places the stoma, which may be same size or smaller than a gastro-enterostomy stoma, in the most favourable position

in the stomach. In this situation the new opening receives the direct drive of the food mass, and there is no possibility of angles or kinks to give a vicious circle. There is also this advantage, that the stoma can be placed very high in the jejunum, nearer the alkaline duodenal secretion. This minimizes the chance of a post-operative jejunal ulcer. Although a persistent silk suture is quoted as a potent cause, it is only reasonable to suppose that a highly acid secretion, low down in the jejunum and more remote from the alkaline pan-

creatic secretion, is a powerful factor in causing these troublesome ulcers. This operation has been done for me on dogs by Dr. Lewis, and has given very satisfactory results, technically and physiologically. This operation should have just as low a primary mortality as gastro-enterostomy, is almost as simple to perform, and, I think, is more truly physiological. I propose, therefore, to use it in early middle stage pre-pyloric ulcer cases, so that the ulcer can be removed. This would avoid the 4% of post-gastro-enterostomy

pregnancy, and would not, I think, increase the primary mortality like the usual partial gastrectomy.

These were all cases of chronic pre-pyloric ulcers with great stenosis. The histories ranged from 18 years to five. The patients were in the last stages of emaciation. The patient in subgroup (b) was so bad we thought he would die in the ambulance. He was given a continuous saline infusion into the rectum for some days before the operation, and a gastro-enterostomy was done in half an hour under warm ether anaesthesia. He survived this, much to our surprise, and improved so rapidly that half the stomach was removed at a second sitting with a very little set-back to his progress. Of course, a one-stage operation would cer-

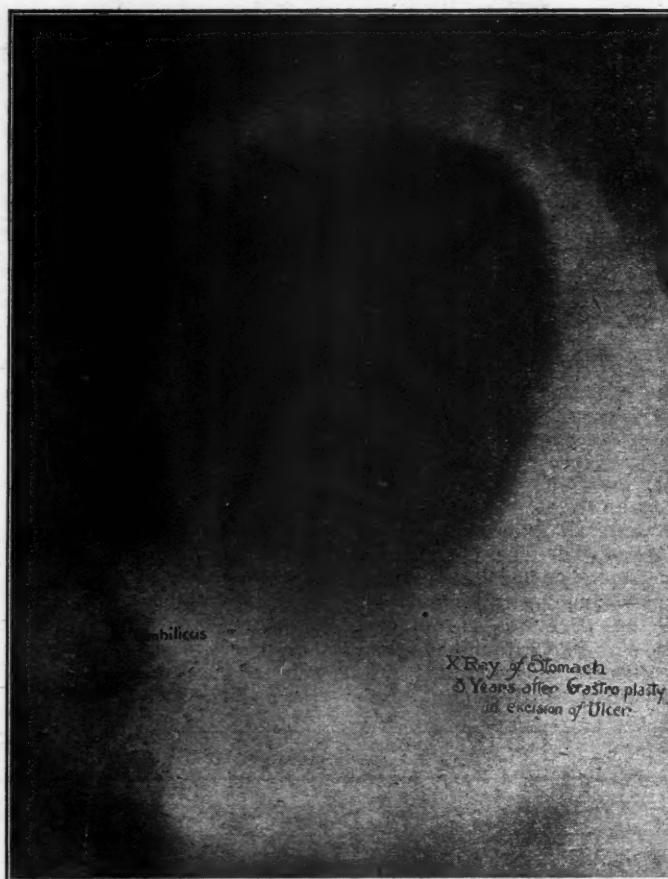


Fig. VIII.
I am indebted to Dr. H. M. Hewlett for the radiogram and tracing of this case.

tainly have been fatal. The other patient in this column got so bad at the operation that only a gastro-enterostomy could be done. As happens, his condition improved greatly, and he refused to undergo the second stage of the operation, with the result that he died some years later of carcinoma of the stomach. I often wonder if I should have risked in this man the one-stage operation. From this I learnt that I might lose a patient, merely from a failure to cope with the personal factor, as easily as I might lose a patient as a result of an unsuccessful operation.

Group D.—Partial Gastrectomy.

Operation.	No. of Cases.	Mortality.	Duration of History.	End Result.	Resistance of Patient.
(a) One Stage	2	1	6 years 9 years	1 Well	Very bad
(b) Two Stage	2	0	18 years 12 years	Died of recurrent cancer 3 years later	Very bad
(c) Pelya Operation	1	0	Many years	Well	Good

In sub-group (a) one patient died from pneumonia three days after operation, probably from too large

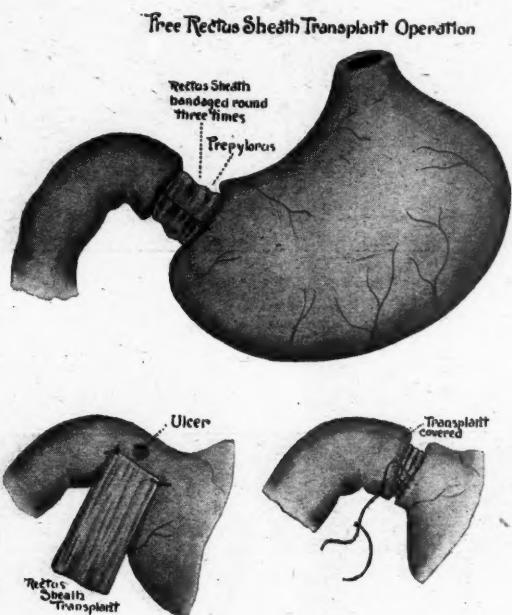


Fig. IX.

a dose of operation. I think I should have done it in two stages.

It will thus be seen that, because of the danger of partial gastrectomy in these debilitated patients (these are the cases that usually need this operation), the surgeon assumes a grave responsibility when he attempts to do them by a one-stage method.

According to Liek, only 2% of gastro-enterostomy patients develop carcinoma. Mayo Robson says 4%. The higher mortality of gastrectomy is not offset by a higher carcinoma danger in gastro-enterostomy.

Does this latter operation cure the ulcer in the majority of cases, and thus remove the danger of carcinoma? In my small series, two (5%) became carcinomatous.

Partial gastrectomy should be reserved strictly for the old ulcers and middle stage suspicious cases.

Technique of Operations Employed.

Gastro-enterostomy.

The usual methods, posterior, no-loop and non-iso-peristaltic, were employed. Separate suture of the mucous membrane of the posterior layer was

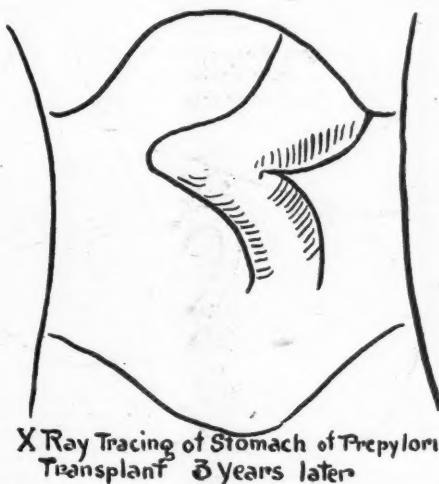
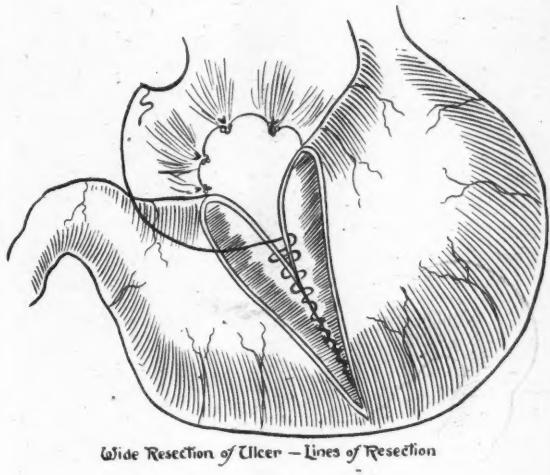


Fig. X.

done in some of the cases. I have seen one case post-mortem of a patient who died from persistent vomiting, after a gastro-enterostomy in which the



Wide Resection of Ulcer - Lines of Resection

Fig. XI.

intestine had been placed in the iso-peristaltic position.

The specimen exhibited is an iso-peristaltic gastro-enterostomy, with pyloric closure in a dog. It shows a dilated stomach secondary to an angulation in the

duodenum at the site of the anastomosis. There is a spur similar to that of a permanent artificial anus. The direction of the opening in the stomach is not quite correct. This exemplifies how easy it is to get a vicious circle with this method.

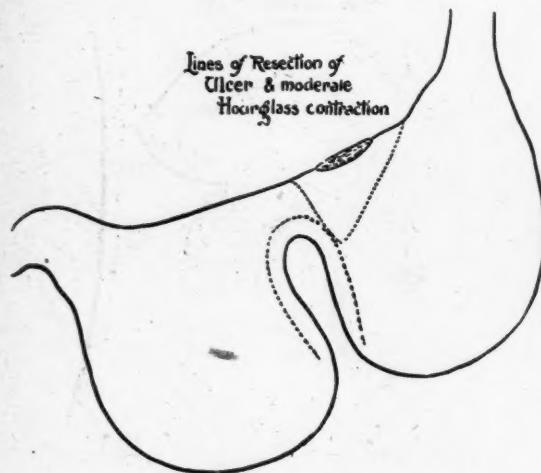


Fig. XII.

Partial Gastrectomy.

I have found the improved Payr's clamps of great aid.

The clamps are so devised that only a small edge

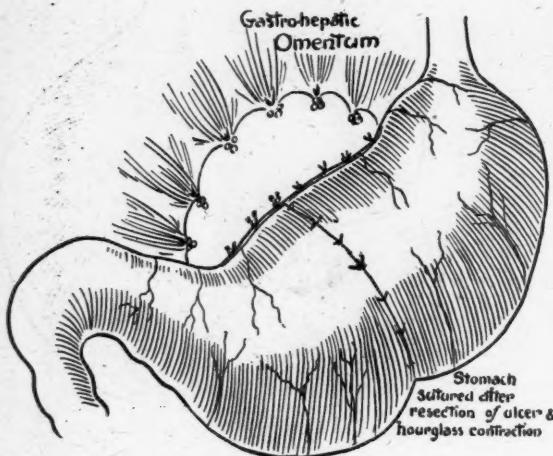


Fig. XIII.

is crushed. The needle holes in the clamp direct the suture through the sound stomach walls, and no devitalized mucosa abuts on the lumen.

The clamps crush and press into intimate contact

the different coats of stomach, and make for safe suturing and early and uniform healing of layers. Where the resection is extensive, the cut end of the stomach can be anastomosed directly to intestine after Pólya.

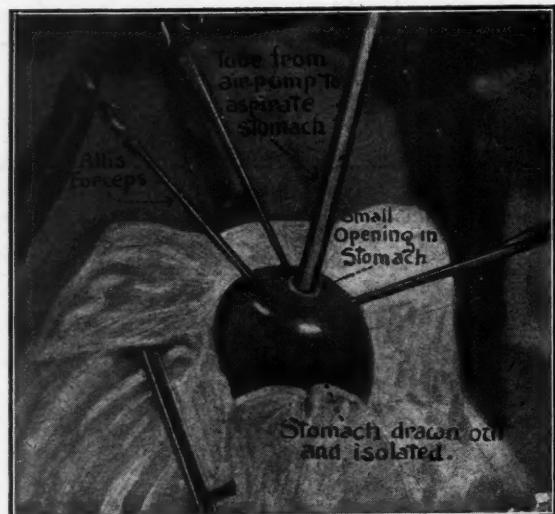


Fig. XIV.

Resection of Ulcer.

I found it exceedingly difficult and unsatisfactory to resect ulcers by the clamp method.

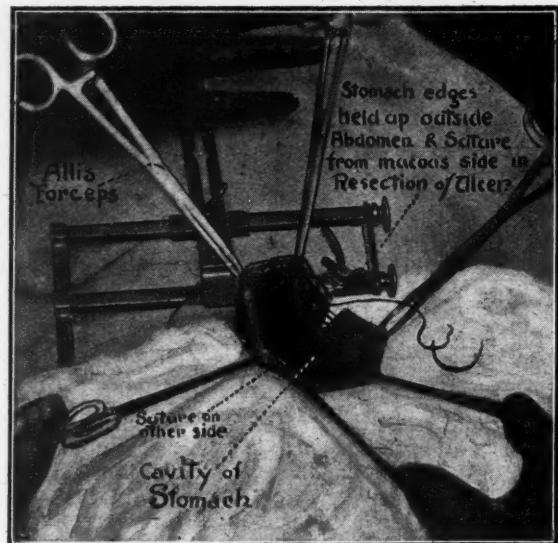


Fig. XV.

The steps of operation were as follows:—

(1) Ligation of the part of gastro-hepatic omentum involved.

(2) Isolation of the stomach with packs.

(3) A small opening close to ulcer was made, the edges well held up with Allis' forceps, and a metal tube connected with a water pump introduced and the contents of stomach aspirated.

(4) Resection of ulcer as viewed from mucous membrane side. This ensures the power to remove accurately a liberal margin around the ulcer, to keep clear of indurated and devitalized tissue. All bleeding points were caught with Spencer Wells and tied off. With ordinary care and the walls of the stomach well held up outside the wound, there is not the slightest danger of soiling the peritoneum; but if the patient should vomit at this stage, any contents that may not have been aspirated will be forced out. The anæsthetist must be specially warned of the danger of this particular stage of the operation.

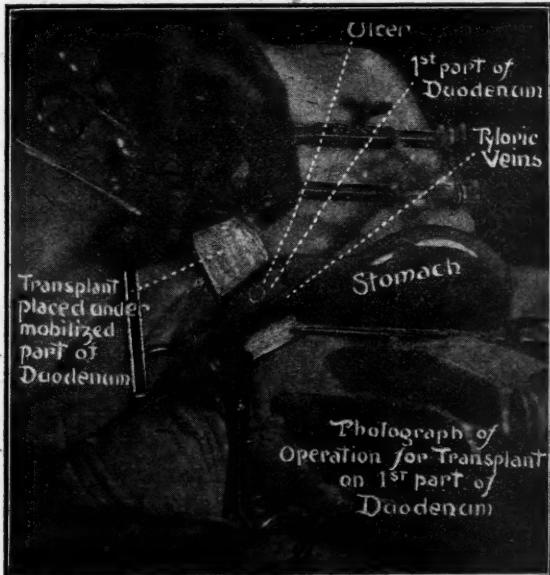


Fig. XVI.

(5) A careful inspection of the patency of the pylorus and an examination for the presence of another ulcer are made.

(6) The greater part of the suturing can be done from the mucous membrane side, thus ensuring an accurate approximation of the mucous membrane—an important point. By a combination of longitudinal and transverse stitching, any hour-glass constriction can be corrected. Where there is an associated hour-glass contraction caused by the ulcer, the transverse suture will extend to the greater curvature.

(7) The edges are touched with tincture of iodine and occasionally, where doubtful, a pedicled flap of omentum is accurately stitched over the suture line (see Figs. XI., XII., XIII. and XIV.).

Even in the case of a chronic ulcer of the posterior wall of the cardiae portion, with marked adhesion to

the posterior wall of lesser sac, there was no necessity to do a transgastric operation. In this way the two ulcers were widely resected without clamps (see Fig. VI.).

Autoplastic Graft of Rectus Sheath with Gastro-enterostomy.

An ordinary gastro-enterostomy was done, then a strip of the anterior sheath of the rectus (about 7.5

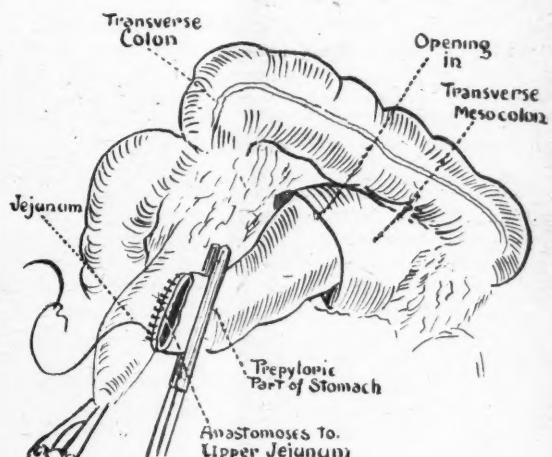


Fig. XVII.



Fig. XVIII.

cm. \times 2.5 cm.) was resected; the corners were fixed by two sutures (see diagram), an opening made in the omentum and the graft bandaged round the ulcer two or three times and fixed with sutures. This was then covered with serosa by Lembert's sutures.

Where the lesion is in the first part of the duodenum, this structure must be first mobilized by pulling the gut down and incising the suggested hepatico-duodenal ligament at its juncture with that gut. This latter is then easily dislocated from underlying strictures (Fig. XV., see also Figs. IX. and X.).

The Operation for Duodenal Ulcer.

The following are the steps:—

(1) Ligation of small portions of the gastro-hepatic omentum and great omentum.

(2) An opening is made in the transverse mesocolon; a clamp is inserted through this and the pylorus grasped. Another clamp is placed beside this over the transverse colon.

(3) The stomach between the clamps is divided and the proximal clamp is pulled through and the duodenal stump is closed in usual way (Fig. XVI.).

The ordinary gastro-enterostomy can, on scientific principles, be only a temporary measure. Therefore, if a short circuit is necessary, why should it not be a permanent one, and why should not the stoma be placed in the most favourable position—the pyloric end—when that is easily possible?

This operation, I think, should replace ordinary gastro-enterostomy in some unfavourable cases of duodenal ulcer. The reason for this has already been pointed out.

General Technique Common to all Stomach Operations.

(1) Pre-operative continuous saline irrigation for two or three days when there was marked pyloric stenosis, to forestall post-operative collapse. These patients are dehydrated and debilitated from vomiting, etc., and stand operation well, if given plenty of fluid beforehand.

(2) Anaesthesia by Gwathwey's apparatus, by which a minimum quantity of warm ether is administered by the open method. Aged patients show very little tendency, even in stomach operations, to chest complications after this method of anaesthesia.

(3) By using a special self-retaining retractor there is no variation of retraction on a sensitive parietal peritoneum, and less anaesthesia is needed (Fig. XVI.).

(4) The use of "postures"; a reversed "Trendelenburg" position in stomach operations means less handling of the intestines.

(5) Patients are taught to feed themselves early and often with very small quantities of a mixture of peptonized milk, tea and glucose.

(6) Pre-operative care and forethought, operative speed and absence of handling, gentle manipulation, absolute haemostasis and proper staging of operation, when necessary, should do away with any necessity for post-operative treatment.

Deductions Drawn from the Thirty-Eight Cases.

(1) Gastro-enterostomy only for a lesser curvature ulcer may result in a failure or cure.

(2) Wide resections of an ulcer almost to greater curvature unassociated with pyloric stenosis resulted in all cases in a permanent cure. Post-operative distress was noticeably absent, and no gastro-enterostomy was necessary.

(3) Cases of post-pyloric or pre-pyloric ulcers with marked stenosis did well with simple gastro-enterostomy.

(4) The autoplastie rectus sheath graft with gastro-enterostomy can be used with success in some cases of pre- and post-pyloric ulcer where there is no stenosis, and especially where there is a tendency to bleed.

(5) Stomach operations lend themselves to stage operations, and often this is the surest way for a successful termination of the surgical treatment.

(6) The surgical treatment should fit exactly the set of surgical pathological conditions present, and the surgeon cannot have all this knowledge without a careful and thoughtful pre-operative X-ray and clinical examination.

Vital Statistics.

SYDNEY.

The vital statistics of the metropolis of Sydney for the months of March, April and May, have been published at intervals in the *New South Wales Government Gazette*. It has been impossible to devote the necessary space to these returns up to the present.

The number of births registered in the three months was 5,247. This compares unfavourably with the average number registered in the corresponding months of the previous five years. The birth-rates expressed as annual rates per 1000 of population were 28.08, 26.66 and 29.65 in the three months respectively. While the total number of births and the general birth-rate has decreased slightly, a more marked diminution in the figures dealing with the illegitimate births is noted. There were 338 illegitimate births, as compared with 370, which was the average for the corresponding period during the previous five years. The illegitimate birth-rate, expressed as an annual rate, works out at 1.78 per 1000 of population, which is approximately 7% below the average.

The number of deaths has decreased from the average figure of 1,956 to 1,857. The decrease took place in March and April, while there was a slight increase in May. The death-rates expressed as an annual rate, for the three months under consideration were 9.13, 9.14 and 10.86. We cannot agree with the remark of the Government Statistician that the mortality rate for May is satisfactory, "being 2.6% above the average of the previous five years."

The number of deaths of infants under one year of age was 282, as compared with 377, which was the average for March, April and May, of the preceding five years. The infantile mortality works out at 53.7 per 1000 births. Unfortunately, no information is available in regard to the number of still births so that it is impossible to estimate the actual loss to the nation due to preventable deaths in infants before birth and during the first year of life.

In regard to the causes of death, diseases of the cardiovascular system continue to play the most prominent part. There were 349 deaths, including 60 from cerebral haemorrhage, and 218 from organic diseases of the heart. There were 212 deaths from cancer. Of the infective processes, tuberculosis caused 112 deaths, diarrhoea and enteritis 91 deaths, pneumonia 55 deaths, diphtheria 30 deaths, cerebrospinal meningitis 10 deaths, enteric fever 4 deaths, influenza 4 deaths, pertussis 4 deaths, scarlatina and erysipelas 3 each and malaria 2. In addition, there were 10 deaths from syphilis and 5 from tetanus. The number of deaths associated with the puerperal condition was 35. There were 137 deaths from Bright's disease and 9 from acute nephritis. Diabetes caused 31 deaths, chronic bronchitis 33 deaths and broncho-pneumonia 38 deaths.

We learn with regret that Dr. Walter Fowler, of Bendigo, Victoria, died on July 27, 1917. He was 59 years of age, and was associated for many years with the Bendigo Hospital. His son, Lieutenant-Colonel Robert Fowler, Australian Army Medical Corps, is serving in the Australian Imperial Force.

The Medical Journal of Australia.

SATURDAY, AUGUST 4, 1917.

The Fourth Year of the War.

On the fourth of August we are inclined to look back to the three years of war completed and to attempt to learn from the past to mould our conduct in the future. During these three years the fortunes of the medical profession have undergone changes, vital, almost revolutionary, and mistakes have revealed deficiencies which have not yet been completely remedied. It is easy to criticize and to blame; those who indulge in the hardest abuse are often the least competent to evolve better conditions. During these three years the medical profession has earned laurels and some wonderful work has been accomplished. The country has reason to regard the doctors with gratitude and to admire the unselfishness and loyalty of many of them. The record is a great one. Under a voluntary system close on one thousand medical practitioners out of a total of well under three thousand have relinquished their regular means of earning a livelihood and have proceeded overseas with the Expeditionary Forces for the purpose of assisting the Empire in its stupendous struggle against military domination. In addition, four hundred men have undertaken military service in the Commonwealth. It is true that not every man in the thousand who have served abroad has been sent to the firing-line. Many have performed important duties at the base and at a safe distance from the enemy. We have had occasion repeatedly to call attention to the fact that the medical officers selected for field service must be endowed with youth and special physical qualities, and that increasing age constitutes a disqualification for these coveted posts of honour. Although the exact number of those who have served as regimental medical officers, in advanced dressing stations and regimental aid posts cannot be given, it is not surprising to find that of these men the proportion of those who have given their lives for their country exceeds that

of the combatant troops. Those who through choice or necessity have not shared the tasks which our brave colleagues in the field have performed so wonderfully, owe to both the living and the dead an obligation to recognize their duty and make the necessary sacrifice. There are times when every medical man in Australia must feel that he has no right to be sleeping safely in his bed at home, while fifty-one of his colleagues are sleeping under the soil, still and cold, as a result of having done their duty to the British Empire. We print their names in reverence below, and ask those who read them whether the voices of the 350 practitioners who have voted against conscription of the medical profession should outweigh the sense of duty expressed by the 1,011. We ask whether we do not owe it to our dead colleagues and to the nation they died for to do our duty to the best advantage of our Empire.

William Robert Aspinall.

Guy Brooke Bailey.

Harold Knowles Bean.

Francis Spencer Bond.

Thomas Charles Bennett.

Norman Wilfred Broughton, R.A.M.C.

Joseph David Buchanan.

Clive Britten Burden.

Sydney James Campbell.

Edward Wilkinson Deane.

Arthur Francis Deravin.

John Ebenezer Donaldson.

James Fairburn Fairley.

James Froude Flashman.

Eric Louis Giblin, R.A.M.C.

Benjamin Digby Gibson.

Stuart Millard Graham.

Harry Franklyn Green.

Kendall Hammand.

Andrew Victor Honman.

Godfrey Howitt.

Melville Rule Hughes.

Roger Forrest Hughes.

Arthur Cyril Albert Jekyll, R.A.M.C.

Frederick Miller Johnson.

Arthur Wellesley Homan Langley.

Keith Maurice Levi.

Reginald Blockley Lucas.

John Fitzmaurice Guy Luther.

Brian Hamilton Mack.
 John Gladstone Mackenzie.
 George Archibald Marshall.
 Gordon Clunes McKay Mathison.
 Albert Guy Miller, R.A.M.C.
 Percy Frederick Money.
 Muir Paul Smith.
 John Lang Niven.
 Harold Frederick Hood Plant.
 Owen Herbert Peters.
 Brian Colden Antill Pockley.
 Samuel Jabez Richards.
 Douglas Rodger, R.A.M.C.
 Arthur Cecil Hamel Rothera.
 Archibald Scott Skirving.
 Normal Craig Shierlaw.
 Harold Oscar Teague.
 Arthur Verge.
 Edward Ronald Welch.
 Maldwyn Leslie Williams.
 Leonard Alexander Wright.

GASTRIC AND DUODENAL ULCER.

In the present issue we publish an excellent article on the diagnosis and surgical treatment of ulcer of the stomach and duodenum, by Mr. H. B. Devine. It will be noted that the discussion on this communication (see page 108) was adjourned after Mr. G. A. Syme and Dr. J. F. Wilkinson had dealt with some of the points raised by the author. The article contains so much food for thought and so many points for discussion that it would almost appear to be advisable to suggest that the attention of the members should be concentrated for the present on a few selected matters connected with this subject, and that the author be asked to present the other details later for separate consideration.

Mr. Devine has not entered upon a discussion on the method of production of ulcer of the stomach and duodenum. He contents himself with making a passing allusion to the commonly-accepted opinion that they are frequently caused by hyperchlorhydria. Surgery which is guided by an empirical attempt to bring relief from symptoms by the removal or physiological exclusion of the affected tissues is unscientific, and can only be justified when methods of prevention or of functional repair are unavailable.

The whole question of the recognition of ulcer of the stomach and duodenum and of its treatment should be governed by a recognition of the actual causes leading to the ulcerative process. It has been established experimentally that hyperacidity of the gastric juice is a very rare condition, if indeed it exists at all. The hydrochloric acid content of the gastric juice is always higher than that of the normal gastric contents. Hydrochloric acid becomes combined with proteins in the stomach, and the free acidity of the juice in a normal empty stomach is consequently higher than the acidity of the gastric contents in the condition spoken of as hyperchlorhydria. The researches of Pavlov and others have demonstrated that an excess of hydrochloric acid is not a cause of gastric ulcer. Bolton has shown that ulcer may be present as a manifestation of disturbed bio-chemical function, while many investigators have shown that ulcer can be produced by bacterial infection. A close study of the condition of the digestive functions of the stomach and upper part of the intestines is essential to a proper understanding of the signs of impending necrosis of the gastric mucosa. In aiming at an ideal treatment of gastric ulcer, it is essential that this stage should be recognized and remedies applied before the lesion is so gross that it becomes visible on the skiagram or fluorescent screen. At this stage the physician must be held responsible for the treatment. If the causes evade his skill, or if a complete restitution is unobtainable by the means at his disposal, he should not hesitate to appeal to the surgeon for mechanical removal of the affected area, as soon as he can demonstrate with certainty that an ulcer is present and is becoming chronic. Mr. Devine takes up the story at this point, and endeavours to analyse the means of diagnosing ulcer or ulcers. There is ample room for ingenuity and originality in the suggestion of means for clinching the diagnosis at an early stage. In the next place it would be advantageous if some agreement were arrived at as to the stage at which surgical intervention is called for. Mr. Devine expresses the opinion that the physician should apply his remedies until recurrent signs point to the fact that the ulcer has become chronic. The disasters of profuse haemorrhage and of perforation are too com-

mon to admit as a general principle that medical means can safely be employed until the lesion is rendering the life of its bearer a burden. If failure to effect repair by medical means could be defined, the recognition of the time when the surgeon should command the situation would be established. It is evident from the experience of medical practitioners that the longer operation is delayed, the less satisfactory the results must be, more especially because in a not inconsiderable number of cases the ulcer is predestined to become the seat of malignant disease.

In the next place, Mr. Devine has laid much emphasis on the necessity of a careful pre-operative diagnosis and of an equally careful diagnosis during the operation. Until the diagnosis of intra-abdominal conditions is based on the recognition of disturbed physiological action, it will remain a necessity for the surgeon to open an abdomen without knowing what he will find. In this connexion it would seem as if progress in the future must depend more on patient research and scientific thought than on technical skill. The discussion at the adjourned meeting of the Victorian Branch of the British Medical Association may contribute to real progress if some of the speakers can record accurate observations applying physiological knowledge to the diagnosis of gastric ulcer. In the last place, it will be noted that Mr. Devine has dealt in some detail and with marked skill with a variety of operations for the several pathological conditions met with. Among the rich suggestions made, it may perhaps be especially fruitful if particular attention were directed toward the means of preventing the food from leaving the stomach through a patent pylorus in cases in which the ulcer is situated close to the pyloric end of the organ. Mr. Devine has given a strong lead for the discussion of this problem.

MULTIPLICATION OF BACTERIA.

Morphologists usually believe that bacteria are unicellular organisms which are reproduced by simple transverse binary fission into two equal parts and, in some species, by a special type of endosporulation. Some have regarded the aberrant shapes, observed in old cultures of bacteria, as involution forms consisting of deformities of dead or dying germs dividing in an unsuitable environment. Others have assumed that these less common forms are produced

by mutation, and that these variations reveal the existence of polymorphism and pleomorphism among these species. In standardized media bacteria breed true to type, so that it has been suggested that bacteria show the same constancy of structure under natural saprophytic and parasitic conditions of life.

A number of microbes, including the *Bacillus typhosus*, *Bacillus paratyphosus A* and the *Bacillus paratyphosus B*, have been grown in acid broth by Dr. E. C. Hort. He has published microphotographs¹ and drawings to prove that polymorphism occurs frequently in these enteric bacteria, and to afford evidence of a complex life history. As many bacteriologists would suppose that contamination with some other species would give rise to similar appearances, Dr. Hort describes in detail the precautions that he adopted to ensure purity of cultivation. The broth was sterilized for 30 minutes at 120° C. in an autoclave at a pressure of 950 mm. Hg. Specially designed flasks of silica, which could be heated to 300° C., were used in many experiments. The microscopic slides were cleaned by burning in a naked flame. The films were made with Congo-red emulsion, prepared with freshly distilled water. Tubes of acidified broth, treated in every way as the inoculated tubes, were used as controls in each experiment. The failure to find a single infected tube among these controls is considered by Dr. Hort to demonstrate the efficiency of his technique in preventing accidental contamination.

The examination of the films made from the cultures revealed that gemmation or budding is a frequent mode of multiplication in these enteric bacteria. The sprouts may be terminal, median or superficial. Sagittal segmentation of the buds can be frequently seen before the bud separates from the parent. In addition, many minute sprouts are produced and detached. These may develop into individuals of normal size. The occurrence of these minute individuals, which are easily seen with dark ground illumination, may account for the ready growth which may be obtained from some filtrates through porcelain filters. These observations suggest such considerable changes in our conceptions of the structure and life-history of micro-organisms that confirmation or correction of them by other investigators is desirable. If the shape of a microbe can no longer be regarded as of value in determining its genus, many modes of bacteriological examination will need revision. Again, the microscopical study of a blood film or of a tissue for germs will require a different technique if these minute forms occur freely during the parasitic growth of microbes.

THE HEALTH SOCIETY OF NEW SOUTH WALES.

The Health Society of New South Wales held a conference or congress on July 25, 26 and 27, 1917, at which the subjects of venereal diseases, pulmonary tuberculosis, the care of infants and school children, the teaching of domestic science, the ill-effect of alcoholism, and the handling of foods, among other subjects, were discussed. The Acting Minister of Public Health, the Honourable David Storey, in

¹ Proc. Roy. Soc., London, B., Vol. 89, p. 468, 1917.

opening the congress, referred to some of the things undertaken by the Government for the improvement of the public health. He spoke of the scheme for coping with venereal disease which was about to be introduced, and gave some of the details. He also announced that a Bill to amend the Medical Practitioners Act for the purpose of prohibiting the practice of unregistered practitioners would be introduced into Parliament, and that an amendment of the Pure Food and Drugs Act to limit the sale of patent medicines would be dealt with soon.

The Minister of Public Instruction, the Honourable A. G. F. James, dealt with the treatment of school children found to be suffering from defects at the medical inspection. He referred to the proposals to refer these children for treatment to the public hospitals. He was hopeful that the arrangements which he was making with certain public hospitals would remove the difficulty which had caused a conflict between his Department and the New South Wales Branch of the British Medical Association. He pointed out that the Government could not recognize a class distinction in regard to the right of admission to hospitals.

During the three sessions a large number of communications were made to the congress, some of which were presented by medical practitioners. It is impossible in this place to deal with these addresses and speeches. As a result of some of the papers, the congress resolved to ask the Federal Government to require a certificate of freedom from venereal disease from persons about to be married, to urge the New South Wales Government to establish a convalescent home for sick children, to suggest to the Government to establish and endow a chair of domestic science at the University of Sydney, to bring to the notice of the Minister of Public Health certain views concerning the handling of foodstuffs and other matters connected with health legislation, to introduce a practical scheme for the teaching of sex hygiene to school children, and to recommend the increase of the number of women police in Sydney. The congress determined to establish a National Society of Health, to consist of the members of the various institutions existing for the purpose of promoting the improvement of the health of the people. This Society, we understand, aims at the co-ordination of the existing agencies and centralization of endeavour to effect desired reforms. The first Council of the Society is to consist of representatives of all the organizations represented at the congress.

Naval and Military.

It is with great regret that we have to announce that Captain William Robert Aspinall, M.C., was killed in France on July 20, 1917. We add our sincerest sympathy with his brothers and other relatives to that of their many friends.

In the 327th list of casualties, issued on July 28, 1917, it is recorded that Captain Cecil Phillip Rosenthal has been severely wounded. In the same list it is announced that Major John Sands Smyth is ill in hospital.

News has been received in Sydney to the effect that Captain Hugh Kingsley Ward, R.A.M.C., is reported missing. It is stated that Captain Ward was wounded for a third time.

We learn that Major R. I. Furber has been awarded the Distinguished Service Order. The same Order has been given to Major H. P. Brownell.

Lieutenant-Colonel H. A. Powell has been awarded the Order of Saint Michael and Saint George in recognition of services rendered in connexion with military operations in the field.

Major S. Roy Burston has been awarded the Distinguished Service Order and received a field promotion to Lieutenant-Colonel. Captain Charles Ralston Huxtable has been awarded the Military Cross.

The following announcement is reproduced from the *London Gazette* of January 23, 1917, in the *Commonwealth of Australia Gazette* of July 25, 1917:—

Central Chancery of the Orders of Knighthood.

The King has been graciously pleased to give orders for the following promotions in, and appointments to, the Most Honourable Order of the Bath for services rendered in connexion with the war. The promotion and appointments to date from 1st January, 1917:—

To be additional Member of the Military Division of the Second Class, or Knight Commander of the said Most Honourable Order:—

Australian Imperial Force.

Colonel (temporary Surgeon-General) Neville Reginald Howse, V.C., C.B., Army Medical Corps.

From the *London Gazette* of January 26, 1917:—

His Majesty the King has been graciously pleased to confer the Military Cross in recognition of his gallantry and devotion to duty in the field on

Captain Wilmot Fenwick, Army Medical Corps, Australian Imperial Force,

For conspicuous gallantry and devotion to duty. He worked continuously for 48 hours under very heavy fire, tending and dressing the wounded. He set a splendid example of coolness and courage throughout.

From the *London Gazette* of February 27, 1917:—

The following officers of the Australian Imperial Force have been mentioned by General Sir Douglas Haig in his despatch of November 13, 1916, for distinguished and gallant services and devotion to duty:—

Colonel R. E. Roth, D.S.O., V.D., Army Medical Corps.

Major H. L. St. V. Welch, Army Medical Corps.

The following appointments and promotions are announced in the *Commonwealth of Australia Gazette* of July 26, 1917:—

Army Medical Corps.

15th Field Ambulance.

To be Captain—

Honorary Captain V. M. Coppleson, Australian Army Medical Corps Reserve. Dated 7th October, 1915. (This cancels the notification respecting this officer which appeared in Executive Minutes 319/1916 and 310/1917, promulgated in *Commonwealth of Australia Gazette*, No. 44, dated 6th April, 1917, and No. 73, dated 24th May, 1917, respectively.)

To be Captain—

Honorary Captains I. M. Barrow and T. O. Cheneveth, Australian Army Medical Corps Reserve. Dated 28th June, 1917.

Honorary Captain G. L. Tomlinson, Australian Army Medical Corps Reserve. Dated 5th June, 1917.

Lieutenant H. W. Davies, 78th Infantry (Adelaide Rifles). Dated 6th July, 1917.

Lieutenant (provisional) A. L. Lance, 26th Infantry.

Dated 12th June, 1917.

John Shaw Mackay. Dated 26th January, 1917.

(This cancels the notification respecting date of appointment of this Officer which appeared in Executive Minute No. 591 of 1916, promulgated on page 1581 of *Commonwealth of Australia Gazette*, No. 83, of 18th July, 1916.)

William Wood. Dated 21st May, 1917.
 Colin Gordon Templeman. Dated 22nd May, 1917.
 Lindsay Peregrine Brent. Dated 2nd July, 1917.

Termination of Appointments.

The appointments of the undermentioned officers are terminated from dates stated opposite names:—

Captain H. S. Walsh, 11th June, 1917.
 Captain E. C. G. Page, 20th June, 1917.
 Captain B. C. N. O'Reilly, 27th June, 1917.
 Captain H. T. Hamilton, 1st July, 1917.
 Captain H. M. James, 14th July, 1917.

COLONIAL AUXILIARY FORCES OFFICERS' DECORATION.

In our issue of July 21, 1917 (page 54), we stated that Colonel Giblin was the first recipient among the officers of the Australian Army Medical Corps of the Colonial Auxiliary Forces Officers' Decoration. This statement is incorrect. Dr. A. Jarvie Hood has supplied us with the following information. The decoration referred to is commonly known as the Volunteer Decoration or V.D.

(a) The previous recipients of the V.D. in New South Wales are as follows:—

Colonel Fiaschi; Lieutenant-Colonel Eames; Lieutenant-Colonel R. Roth, C.M.G., D.S.O.; Colonel Beeston, C.M.B.; Lieutenant-Colonel Perkins; Lieutenant-Colonel Newmarsh, C.M.G.; Lieutenant-Colonel George Marshall (deceased); Lieutenant-Colonel R. G. Alcock and Lieutenant-Colonel A. Jarvie Hood.

Of these, Lieutenant-Colonel A. Jarvie Hood was the first recipient (1912). Dr. F. W. Hall and Lieutenant-Colonel G. Lane Mullins will have completed twenty years' service in the Army Medical Corps within a short time, and will therefore be awarded the decoration.

(b) The original Army Medical Corps in New South Wales organized under General Sir (then Major) W. D. Campbell Williams comprised the following officers:—

G. F. Dansey (now deceased); S. H. McCulloch (retired); R. Vandeleur Kelly (deceased); A. Jarvie Hood (the only original member now in the Corps); E. J. Jenkins (retired); L. R. Huxtable (deceased); and J. McLeod (retired).

AUSTRALIAN ARMY MEDICAL CORPS COMFORTS FUND.

We have received two further subscriptions to our appeal for supplying Christmas cheer to the members of the Australian Army Medical Corps.

	£ s. d.
Amount previously acknowledged	22 17 0
Dr. Frank A. Nyulasy (Toorak, Victoria)	2 2 0
Dr. Christina H. Reid (Finley, N.S.W.)	1 1 0

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the fortnight ending July 14, 1917:—

	Metropolitan	Hunter	River	Rest		Total.
				District.	Combined District.	
	Ca. Dths.	Ca. Dths.	Ca. Dths.	Ca. Dths.	Ca. Dths.	
Enteric Fever	11	1	1	0	8	20 3
Scarlatina	49	0	5	0	30	0 84 0
Diphtheria	142	0	18	1	115	3 275 4
C'bro-Sp'l Menin.	1	2	0	0	2	0 3 2
*Pul. Tuberculosis	51	22	2	0	5	0 58 22

*Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountains Shire and Katoomba Municipality.

We are informed that 32 cases of variola have been notified at Warren and five at Cessnock.

VICTORIA.

The following notifications have been received by the Board of Public Health, Victoria, during the week ending July 15, 1917:—

	Metro- politan.	Rest of State.	Total.
	Ca. Dths.	Ca. Dths.	Ca. Dths.
Diphtheria	53	0	31 1 84 1
Scarlatina	15	3	11 0 26 3
Enteric Fever	1	0	0 0 1 0
Pulmonary Tuberculosis	28	4	9 4 37 8
C'bro-Spinal Meningitis	6	—	5 — 11 —
Poliomyelitis	1	—	0 — 1 —

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending July 14, 1917:—

Disease.	No. of Cases.
Cerebro-Spinal Meningitis	1
Pulmonary Tuberculosis	19
Scarlatina	8
*Diphtheria	26
Erysipelas	5
Enteric Fever	2
Ankylostomiasis	2
Puerperal Fever	1
Malaria	7
One case returned as membranous croup.	

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, for the fortnight ending July 14, 1917:—

	Adelaide.	Best of State.	Total.
	Ca. Dths.	Ca. Dths.	Ca. Dths.
Diphtheria	11	2 60	5 71 7
Pertussis	0	0 42	0 42 0
Erysipelas	0	0 5	0 5 0
Scarlatina	2	0 9	0 11 0
Pulmonary Tuberculosis	1	4 6	9 7 13
Morbilli	0	0 13	0 13 0
Enteric Fever	0	0 1	0 1 0
C'bro-Spinal Meningitis	1	1 0	0 1 1
Puerperal Fever	0	0 1	0 1 0

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the fortnight ending July 7, 1917:—

	Metro- politan.	Rest of State.	Total.
	Cases.	Cases.	Cases.
Enteric Fever	4	2	6
Diphtheria	21	8	29
Scarlatina	13	2	15
Pulmonary Tuberculosis	12	3	15
Septicæmia	1	0	1
Cerebro-Spinal Meningitis	2	1	3
Erysipelas	1	0	1

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the fortnight ending July 14, 1917:—

Disease.	Hobart.	Laun- ceston.	Country.	Whole State.
	Cases.	Cases.	Cases.	Cases.
Pulmonary Tuberculosis	1	0	1	2
Scarlatina	2	2	2	6
Diphtheria	2	5	17	24
Enteric Fever	0	1	0	1
Puerperal Fever	0	1	1	2

Our attention has been called to the fact that the New South Wales Government Tourist Bureau has organized home carnivals to be held at the Hotel Kościusko on August 9 and August 23, 1917. We understand that the conditions for winter sports are favourable at present.

Abstracts from Current Medical Literature.

MEDICINE.

(34) Acidosis.

Fergus Hewat, in an address published in *The Practitioner* (May, 1917), deals with the subject of acidosis. The term acidosis denotes a disturbance of metabolism in which abnormal organic acids are formed in the body, circulate in the blood, and appear in the urine. It may be a lactic acid acidosis, but the term is usually employed to designate the presence in the urine of *β*-oxybutyric acid, aceto-acetic acid and acetone. "Acidosis" must be distinguished from acid intoxication, in which, in addition to acidosis, toxic symptoms due to these organic acids appear. The blood in diabetic coma is not acid in the true sense of the word. Poulton has shown that the blood, after mild exercise, is more acid than in extreme diabetic coma, and that in acetonuria acid intoxication does not exist. At present it is believed that these bodies owe their origin to abnormal fat metabolism. Acetone bodies increase in the urine if the intake of carbohydrate bodies is withheld or decidedly diminished. The process of oxidation of fat and that of carbohydrate are intimately linked together. The introduction of large quantities of these acids into the body will not produce toxic symptoms, and many people may suffer from mild acidosis for months without toxic symptoms. The body can develop considerable quantities of antidote to these acids, by manufacturing large quantities of ammonia in the process of proteid metabolism. In acidosis the ammonia is prevented from following its normal stages to urea by uniting with the abnormal acids. There would, therefore, be an increase in the excretion of ammonia-nitrogen at the expense of urea-nitrogen. The defensive process against the abnormal acids draws also on the fixed bases of the tissues (Ca., Na., K. and Mg.), and it has been suggested that the symptoms of "acid intoxication" may be due to a lack of sufficient bases. In addition to diabetes, acidosis may be present in starvation, change of diet and surroundings, gastro-intestinal disturbances, acute septic conditions, febrile states, cachexia, constipation, rectal feeding, delayed anaesthetic poisoning, toxæmia of pregnancy, tetanus and phosphorus poisoning. In these pathological states the patient is suffering from starvation or an increased metabolism in addition to relative starvation. In children mild cases are comparatively common, clearing up quickly under purgation and alkaline treatment. In some cases, however, very grave symptoms develop. The clinical features in children vary greatly, and the author gives details of four cases, in one of which

"cyclic vomiting" was prominent. "Billous attacks" in children may be due to acidosis, and the author thinks that cases of fat indigestion show evidence of acidosis. Many children dislike fat, and, if they are forced to take it, become listless, and exhibit toxic symptoms. Acetone bodies may appear in the urine after ether as well as chloroform anaesthesia. R. S. Frew found aceto-acetic acid in the urine of 62% of the children at the Great Ormond Street Hospital during the first 24 hours after admission. This persisted for three or four days. He concluded that it was due to a change in diet and surroundings. It disappeared when a little dextrose was added to the diet. The indications for treatment are (1) to stop the formation of the abnormal acids, and (2) to neutralize the acids already present. In an ordinary "billous attack" purgation, followed by an alkaline mixture and the addition of dextrose to the diet, is the main indication. In severe "cyclic vomiting" no food can be given by mouth. The lower bowel must be emptied and glucose solution, with sodium bicarbonate introduced by a long tube. Sodium bicarbonate may be given by mouth in warm sweetened water, and repeated frequently, if it is rejected.

(35) Shell Wound of Heart Causing Complete Heart Block.

C. Edgar Lea reports the case of a soldier, aged about 20, who received a wound (probably by a shrapnel fragment) over the heart region on July 1, 1916 (*Lancet*, March 31, 1917). The writer first saw the patient in December, 1916. The wound had then healed, but there were shortness of breath on exertion, no syncopal attacks, and no pain. The cardiac dulness was increased to the left and probably to the right. A soft systolic murmur was heard over the apex. The rhythm was regular. The pulse beat was 40 per minute, not varying with effort. An X-ray examination disclosed the fragment situated near the diaphragm, on the left side; it moved upwards with the ventricle at each systole, and was probably in the myocardium or in the pericardium, which was probably adherent at this site. The heart also appeared much larger than had been suspected from percussion. Electrocardiographic curve showed typical complete heart-block. The patient was subsequently lost sight of. The case presents two problems: (1) What was the relation of the wound to the blocking? (2) What treatment could be advised? (1) Doubtless the heart-block was induced by causes immediately associated with the wound. The patient, before its infliction, had been perfectly well, and so slow a pulse would not have passed unnoticed. It is anatomically impossible for the bundle of His, situated in the centre of the heart, to have been directly damaged by the fragment, which was on the outer aspect of the myocardium, nearer to the apex than to the base of the heart. The explanation suggested is that the mechanical shock to the heart, due to the

wound, caused a small haemorrhage, implicating the auriculo-ventricular bundle. This is a structure with a fairly good blood-supply, and it is embedded in tissues of some rigidity, which would offer a relatively greater resistance to a mechanical blow. (2) Medical measures would be of little avail. Atropine had no effect, and, if the cause were traumatic, potassium iodide could offer no satisfactory prospects. Operation would be equally helpless in removing the block. Doubtless the fragment could be successfully removed, but would a surgeon like to operate on a case complicated, as this was, by a severe functional disorder? Though the patient had had no previous syncopal attacks, it did not follow that such an event might not be induced under an anaesthetic. Even were the fragment removed, it is doubtful whether the full functional efficiency of the myocardium, already seriously impaired (as shown by the dyspnoea and cardiac enlargement), would be restored or much alleviated.

(36) Amœba Histolytica "Carriers" Treated with Emetine Bismuth Iodide.

C. G. Imrie and W. Roche, in a contribution to the *Journal of the Royal Army Medical Corps*, March, 1917, say that the alkaloid emetine exhibits a specific action on *entamoeba histolytica*. However, emetine, as at present employed, does not always effect the destruction of this protozoan in its encysted stage. Thus, convalescents may continue over a considerable period of time to pass these cysts, which are capable of transmitting the infection. It is obvious that it is desirable to destroy the entamoeba in the encysted stage. Dale has suggested that the failure of emetine, by hypodermic administration, to destroy the cysts of entamoeba may be due to the presence of the latter in healed pockets or sinuses, and thus shut off from the circulation and tissue fluids of the body. In support of this hypothesis he mentions the alleged superior efficacy of earlier treatment with ipecacuanha by oral administration. He has introduced, on the suggestion of Du Mez, a compound of emetine and bismuth iodide for oral administration, with which to obtain the advantages of the ipecacuanha and yet avoid its pharmacological action. The presence of cases of amoebic dysentery in the 4th Canadian General Hospital provided an opportunity for the authors to study the action of emetine bismuth iodide. Observations were made on six patients, all known to be carriers of *entamoeba histolytica* cysts. Of additional interest is the fact that four of these patients had been previously subjected to a course of emetine hydrochloride, daily doses of 0.06 gm. hypodermically for ten or twelve successive days, and still continued to pass cysts in the faeces. The emetine bismuth iodide was administered in doses of 0.18 gm. on twelve successive nights. When given immediately after the light supper

which the patients had at 7 p.m. it was always followed by nausea and in some cases vomiting. These undesirable symptoms were least in evidence when the patients received the drug with water at 10 p.m. Five of the patients ceased to pass *entamoeba histolytica* in the active or encysted form 48 hours after the institution of treatment. The sixth patient continued to pass cysts for six days, after which the microscopical findings were negative.

NEUROLOGY.

(37) Regeneration in Peripheral Nerve: An Experimental Study.

Kirk and Lewis (*Bull. of the Johns Hopkins Hosp.*, February, 1917), having devised a surgical method for bridging a nerve defect, namely, tubulization or sleeving of the cut ends with an auto-transplant of *fascia lata*, employed the same method for a study of the histology of nerve regeneration. The material comprised 41 sciatic nerves of adult dogs. The defect was produced by excising a segment varying in length from one to three centimetres. The animals were killed at periods from 1 to 36 days after operation and the nerves submitted to careful microscopic examination. It was concluded: (1) That in the immediate vicinity of the cut ends of a nerve a hyperplasia of the neurilemmal elements occurred, which resulted in the early formation of protoplasmic bands. These formed in both the proximal and the distal stump, and tended to bridge the defect. Along these protoplasmic pathways the regenerating axis cylinders from the central stump passed, and success in reaching the distal stump and neurotizing depended largely on the extent to which these conduits prepared the way. (2) All efficient regeneration of nerve fibres (axis cylinders) was from the central stump. All regenerating nerve fibres, whether the outgrowth of medullated or of non-medullated axones, were in their early stages non-medullated. (3) All medullation began proximally and proceeded distally, appearing only in those parts of the new axis-cylinders which had acquired an age of about five weeks (in the dog). The research was carried out in the Morris Institute of the Michael Reese Hospital, Chicago, and the paper was illustrated by a series of plates.

(38) Lipodystrophy Progressiva.

Parkes Weber (*Quarterly Journ. of Medicine*, Vol. X., Nos. 37 and 38) had seen two examples of *lipodystrophy progressiva*, and quoted twenty others; it was characterized by a progressive disappearance of the subcutaneous fat from the parts above the lower extremities, that is to say, above the buttocks and the inguinal folds. The disease seemed specially to affect women of the Hebrew race, and generally began in childhood, at or about the age of six years. Though disfiguring, it was not disabling. Treatment by drugs and animal extracts was of no avail, and cosmetic measures (paraffin injec-

tions) gave only temporary results. Aetiologically an endocrin origin was suspected. From recorded biopsies the only change seemed to be disappearance of the subcutaneous fat. In differential diagnosis, bilateral atrophy of the subcutaneous tissues of the face was referred to, and the opinion expressed that some of the reported cases of this affection might possibly have been limited *lipodystrophy progressiva*. Probably there were incomplete forms of the disease, in which the lower part of the abdomen, as well as the lower extremities, might be excessively covered with fat, the face and upper part of the body appearing thin. The disease known in England as "diffuse symmetrical lipomatosis," in which the sides of the face, the shoulders, the upper arms and the back of the thorax, as well as the neck, were loaded with folds of fat, and which occurred almost exclusively in males, was the opposite of *lipodystrophy progressiva*.

(39) Histopathological Changes in a Case of Amyotrophic Lateral Sclerosis.

Hassin (*Med. Record, New York*, February 10, 1917) pointed out that while the anatomo-pathology of amyotrophic lateral sclerosis had been studied, its histo-pathology had been neglected. Therefore, on securing material from a typical case he carried out a thorough and special histological examination of the nervous system. His most important finding was that we had to deal with a secondary degeneration in various stages, in other words, that the destruction of motor fibres, which was the essential change, did not proceed *en masse*, but gradually and progressively. Throughout the motor tract from cortex to peripheral nerve, he saw a combination of healthy fibres with fibres in all stages of degeneration. He agreed with others in thinking that a change in the motor cells of the cerebral cortex was the primary cause of the tract degeneration, but refrained from offering an opinion as to the cause of that cortical change. He concluded by indicating the histopathological differences between *tabes dorsalis* and amyotrophic lateral sclerosis.

(40) Penetration of Arsenic (Salvarsan) and Aniline Dyes into the Brain.

McIntosh and Fildes (*Brain*, Parts 3 and 4, 1916) in a previous paper showed that after intravenous injections of salvarsan and neo-salvarsan no arsenic could be traced in the brain substance, which result they ascribed to an obstruction to the passage of the drug from the blood stream into the brain substance. In the present paper they detailed experiments, namely, the intravenous injection of rabbits with methylene blue, neutral red, fluorescein, and indigo-carmine, devised to show the factors involved in this matter of penetration. They found that only those dyes which were soluble in chloroform passed from the blood into the brain substance. And since neither salvarsan nor neo-salvarsan were soluble in chloroform, they thought this

was the missing need explaining their inefficiency in the treatment of *syphilis centralis* (general paralysis and tabes) as opposed to their efficiency in *syphilis meningo-vascularis*.

(41) Degeneration of Muscle Following Nerve Injury.

Ffrancon Roberts (*Brain*, 1916) tested some hundreds of cases to determine the moot point whether polar reversal occurred, and if so, what its significance was. He found that in normal muscle K.C.C. > A.C.C., as long as the testing electrode was placed on the motor point, which was not always possible, for example, in the case of the intrinsic muscles of the hand; whereas, in the degenerated state, the muscle tended to be indifferent to polarity. Again, while normal muscle was more excitable at its motor point than elsewhere, degenerated muscle was equally excitable at all points, which was due to the disintegration of neural and neuro-muscular elements at the motor point. He remarked further that in cases of nerve injury there was usually no doubt as to whether the muscle was degenerated or not. The question of practical importance was the extent of the nerve injury. To this question the electrical reactions gave but a limited answer. If, however, there were wasted paralysed muscles, giving the full reaction of degeneration, if also the cutaneous sensory loss was full and trophic changes were advanced, exploratory operation was advisable. If, on the other hand, the wasting was slight, the sensory loss incomplete and the trophic change undeveloped, notwithstanding that the muscles gave the reaction of degeneration, the case should be watched for a couple of months. Injuries of this class usually recovered without operation. These were the chief types of injury met with in the present war. Concerning subsidiary treatment by electricity and massage, it had been argued that because experimentally a rabbit's muscle had been found not to respond to electrical treatment, therefore in the human being electricity was valueless. The reply was to compare a limb which had been constantly stimulated with one which had been neglected. In treatment, it was important to confine the current to the affected muscles and to avoid stimulation of the antagonists.

(42) Hyoscine in Mental Disorders.

Daniel (*Journ. of Ment. Science*, Vol. LX.) gave warnings in the use of hyoscine in mental disease. To get specific benefit from continued administration, increasingly larger doses were required; these might precipitate hyoscincism, of which rapid emaciation was one sign; therefore to weigh the patient regularly was important. To quieten acute excitement there was no drug so reliable, but it should not be repeated indefinitely. It was contra-indicated in senility, in epileptic imbeciles ("weak-minded epileptics appear to have a marked idiosyncrasy for the drug") and in the presence of a weak heart.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch was held at the Medical Society Hall, East Melbourne, on July 4, 1917, Professor R. J. A. Berry, the President, in the chair.

Artificial Arms.

Surgeon-General R. H. Fetherston exhibited a representative of Messrs. Carne Company, whose arm had been amputated 7.5 cm. from the shoulder joint. He had been fitted with a Carne's artificial mechanical arm. The speaker stated that the firm supplied hundreds of their artificial arms to returned soldiers, and guaranteed to keep them in repair and to instruct the men in their use. The representative of the firm had been sent from America to Australia. He had worn the arm for over four years. He had previously been a signalman on a railway and had had no knowledge of mechanics. The members would see that he could remove his overcoat, coat and waistcoat without assistance, in order that they might examine the mechanism of the arm. The men in England had refused to persevere with the use of the limb and consequently condemned it as a failure. It required some intelligence and much perseverance to render it a really serviceable arm. Though a stump was desirable, these arms had been supplied to men in whom amputation through the shoulder joint had been carried out. In these cases it was naturally impossible to obtain full arm movement.

The representative of the firm then performed a number of arm movements. The arm was raised in a natural manner and the fingers flexed. In the next place he grasped a chair and raised it from the floor. A pencil was carried to the mouth in imitation of the act of feeding. He struck a match, holding the box in his natural hand, and lit a cigarette. The hand was carried behind the head both from the right and from the left. He stated that he could use a hammer, and performed the movements of pronation and supination. The only assistance given to the artificial arm by the natural one was for the purpose of locking the joints at the wrist and elbow. Finally he demonstrated that the arm could be removed very rapidly without difficulty. In reply to questions, he stated that certain movements were performed by a shrug of the shoulder. He demonstrated the mechanism by which the actions of the deltoid and of the supra-spinatus muscles were imitated. He held the opinion that anyone could learn to perform any of the movements he had carried out at the meeting after a month's practice, but it would take two months to acquire accuracy.

He pointed out that the cords which provided the mechanism for movement of the arm and fingers would have to be renewed about once a year. The wearers were instructed how to adjust them. The cost would not exceed £1s. The straps did not chafe the skin, although there might be some tenderness at first. The representative had worn the same arm for over four years, and had at times not removed it for two days. He pointed out that even when no stump was present, the fingers could be flexed. The weight of the arm was between 1,100 and 1,350 grammes. These arms had been worn by farm workers, machinists and engineers in the United States of America. The usual price was \$250, or about £52. The firm, however, had a special agreement with the Commonwealth Government.

Medical practitioners were asked to report all cases of apparent failure to the Defence Department. Instruction in the proper use of the arm would then be given to the wearers.

Chronic Ulcer of the Stomach and Duodenum.

Mr. H. B. Devine read a paper on "Chronic Ulcer of the Stomach and Duodenum." The text of the paper is reproduced on page 89 of this issue. The paper was illustrated by means of radiograms and diagrams projected on the screen.

Mr. G. A. Syme congratulated Mr. Devine on his excellent paper. He agreed that it was highly useful to review one's work, to take stock of the progress made and to draw conclusions. He would have liked to have presented a summary of his own work during the past few

years, but he had been so occupied that he had had no time to prepare this. The subject of gastric and duodenal ulcers had been discussed in Australia on many occasions, including those of the Australasian Medical Congress in Melbourne and in Auckland and at meetings in the Medical Society Hall. The paper read that evening showed that good progress had been made in the knowledge of the subject.

He would leave the question of diagnosis to be dealt with by Dr. Wilkinson. He said that it was often difficult for a surgeon to carry out his own X-ray investigations and to make the diagnosis and then to confirm the diagnosis on the operating table. In his practice, the diagnosis had generally been made before the patients came to him for operation. He confessed that he did not attach as much importance to X-ray diagnosis as Mr. Devine had done. The evidence of an X-ray examination was often misleading. Another point was the exclusion of conditions presenting symptoms of ulcer which were not cases of ulcer at all. He had often found by careful and repeated examination that there was evidence of the condition causing the symptoms which appeared to indicate ulcer. The patient should be kept under observation for some time and then repeated examination would reveal that there was definite evidence of appendicitis or gall-stones, or that the symptoms were only a reflex of trouble elsewhere. Mr. Syme referred to cases in which there was an ulcer, and also another condition causing it. In cases of this kind it was of the greatest importance that a free incision should be made and the abdomen thoroughly examined. He had frequently found associated conditions, such as gastric ulcer, gall-stones and appendicitis, all of which were dealt with surgically at the one operation.

Assuming that ulcer was present, it was often difficult to determine at the time the form of operation to be performed. Gastro-jejunostomy had formerly been employed as the operation for the cure of all forms of duodenal ulcer. Mr. Devine had stated that he had met with a case of duodenal ulcer for which gastro-enterostomy had been performed, but years afterwards, it was obvious that the ulcer had not been cured. Mr. Syme had seen and reported similar cases. At the Auckland Congress he had given an analysis of all the cases at the Melbourne Hospital during a considerable number of years. The Registrar had written to all the patients for the purpose of ascertaining what their condition was. Replies had been received from very many of these patients. This enquiry had shown clearly that the surgical treatment of gastric and duodenal ulcers had not been as satisfactory as they had been led to believe. The only patients in good health were those in whom the ulcer was situated close to the pylorus and who had suffered from considerable obstruction and food-retention. When there was food retention, gastro-enterostomy was successful at first. It relieved the obstruction, but it did not always cure the ulcer. Surgeons were often credited with brilliant results, but it was necessary to follow up the cases for years before a verdict could be given. Mr. Devine had mentioned one case of failure eight years after the operation. This case would have been regarded as a success within a short time of the operation. Gastro-jejunostomy alone did not cure ulcers. Excision or gastrectomy was necessary to get rid of the ulcer. If gastro-jejunostomy were done as well as excision or gastrectomy, and the patient was in an exhausted condition from starvation, it would be necessary to perform the operation in two stages. By means of a preliminary gastro-jejunostomy the patient's condition was greatly improved. The resection could then be done at a later stage, and even a considerable time afterwards. Mr. Syme failed to understand what gastro-jejunostomy could do for the patient when the ulcer was not associated with food retention. Theoretically it was held that the operation might possibly counteract the acidity and enable the food to escape more rapidly; there would consequently be less hydrochloric acid in the stomach. When the pylorus was patent, the food passed through the natural opening and not through the stoma, and the supposed advantages were not obtained. In the absence of contraction the pylorus could be closed by tying something round it. Various methods had been tried, and Mr. Devine's method of using the rectus sheath

was apparently good. It made the gastro-jejunostomy functional. It prevented the food from going through the pylorus, and directed it through the stoma. The pylorus, or that portion of the stomach where the ulcer was situated, should be resected to get rid of the ulcer. This could be achieved without a gastro-jejunostomy by cutting out the pylorus and uniting the narrow end of the stomach to the duodenum. This procedure preserved the physiological action of the stomach. He had seen the operation done in this way by Sir John Bland Sutton, and had also examined some of the specimens removed.

After the ulcer had been resected the surgeon was not at the end of this trouble. There might be multiple ulcers. A case had come under his observation in a nurse at the Melbourne Hospital. The ulcer was situated on the anterior wall of the stomach, nearer to the pyloric than to the cardiac end. It had been widely resected. The patient had got well, but there was a sudden perforation. He had expected to find that the stomach wall had given way at the point where the ulcer had been resected. He found, however, that the perforation was due to an ulcer at the cardiac end, which had not been obvious at the first operation. In the museum there were specimens of multiple ulcers in all stages. If it were not possible to do an end-to-end junction after resection of the pylorus, the operation devised for carcinoma by Pólya, which consisted in attaching the pylorus direct to the jejunum, could be carried out.

He agreed with Mr. Devine in regard to the use of clamps. He had found it necessary to employ them, but applied them as far away from the ulcer as possible. If it were possible to do without clamps, the result would prove more satisfactory. He did not agree with Mr. Devine's statement that a large resection was not more dangerous than gastro-jejunostomy. In his experience, gastro-enterostomy took less time to perform than resection. The question often arose whether a partial or wide excision should be carried out. It was quite impossible to determine at the time of operation whether the ulcer was chronic, malignant, or non-malignant and becoming malignant. At the Auckland Congress he had shown specimens which illustrated this point. One ulcer that had all the appearances of a non-malignant affection, was cancerous, while another, which looked like a malignant ulcer, was non-malignant. He would leave it to Dr. Wilkinson to discuss the treatment after operation and the medical treatment of these ulcers. He wished to point out, however, that it was not wise to leave these ulcers alone until the patient was in an exhausted condition. They should be operated on long before that stage was reached. The surgeon did not have a reasonable chance when the operative treatment was delayed. This was more particularly the case when hour-glass stomach was present. This condition could be recognized in the early stage. In conclusion, he congratulated Mr. Devine on his excellent paper, which had been so well illustrated.

Dr. J. F. Wilkinson suggested that the discussion be adjourned, on account of the lateness of the hour. It was decided, however, to proceed.

Dr. Wilkinson first dealt with the question of diagnosis. When it could be demonstrated that conditions of the type shown on the screen were present, the surgeon should be called in, but there was often difficulty in deciding that these types were present. He suggested to the author of the paper that he should prepare a short tabulation of the symptoms of all the cases mentioned, before publishing his paper. He thought that this would undoubtedly increase its value. Something should be stated on the question of the advisability of excision of the ulcers, when this was possible. A great number of them were probably pre-cancerous. Ochsner had stated that two-thirds of the cases of chronic gastric ulcer revealed evidence of early malignant metamorphosis. Of 566 patients with gastric malignant disease, 436 were males. This gave a proportion of 3.1 to 1. In 239 cases, or 41.89%, the disease followed a definite ulcer syndrome. The disease began as a primary carcinoma in 32.1%, and ran a rapid course. In 18.7% there was irregular gastric ulcer. There was a history of ulcer in 60.5%. It was, therefore, important to deal radically with chronic gastric ulcer cases. The condition should be re-

garded as a surgical one requiring operation if possible, in every case in which an ulcer, and particularly a chronic ulcer, was definitely diagnosed. A difficulty, however, was frequently met with in that it was not always possible to persuade the patient to agree to surgical intervention. The outlook was not altogether hopeless, under these circumstances. Dr. Wilkinson spoke of elderly people in whom a malignant condition of the stomach had been diagnosed. These people were going down hill rapidly, were found after blood examination to be anaemic, and were in a wasted condition, and there was a history of vomiting. They were so ill as to be unfit for operation. After they had been put to bed and rested, given carefully regulated food and hydrochloric acid and iron after meals, they apparently got perfectly well. No doubt they had had chronic gastric ulcer, but with careful medical treatment they had recovered, and remained well for years.

As a rule, the diagnosis was not settled by the X-ray plate. If the ulcer happened to be buried in the liver, the X-ray plate would be helpful. In many cases a gastric ulcer was diagnosed when it was not present. He contended that, unless the ulcer could be demonstrated, its presence should not be assumed. He recalled the case of a man who had had two attacks of haematemesis, was losing weight, was anxious about himself and had symptoms of a chronic gastric affection. The X-ray plate showed a condition in the neighbourhood of the pylorus that was suggestive of malignant disease, or at least of a chronic duodenal ulcer. There was tenderness over the appendix. At the operation no sign of ulcer could be found, nor of adhesions or thickening. The condition might easily have been diagnosed as a chronic gastric ulcer. The appendix was removed and found to be diseased. Dr. Wilkinson said that it would be interesting to learn what the condition of this man would be in the future. It was well to bear in mind that the business was not finished when the surgeon had done his bit of carpentry. It was not wise to tell the patient after the operation that he was quite well, that he could do as he liked, and that he could eat anything. These patients often returned to the physician six or twelve months later, as ill as before. They needed medical treatment after the operation, and it was of the greatest importance to ascertain whether the hydrochloric acid in the stomach was increased or not. Many patients required acid to help the pancreatic secretion for a long time, and these patients should be sent back to the physician after the surgeon had done with them.

There were three important symptoms in the diagnosis: they were pain, vomiting and wasting. Ulcers had been known to perforate suddenly, without any previous history, but as vomiting was the sign of a dilated stomach, and wasting was the sign of malignant disease, pain was the symptom of ulcer. This was particularly the case if the pain bore a definite relationship to the ingestion of food, as when it set in two, three or four hours after a meal. In the absence of this symptom, every other point of investigation should be employed. An X-ray examination should be carried out, a test-meal should be given, and an examination should be done for occult blood. The history should be very carefully inquired into. He greatly desired to learn the cardinal symptoms of the cases that had been referred to by Mr. Devine. Pain in relationship to the kind of food taken was also of importance. Patients with gastric ulcer were usually worse after taking solid food or after taking a large amount of food. Pain that exhibited a variable relationship to the ingestion of food would be more suggestive of gall bladder trouble or appendicitis. The symptoms of duodenal ulcer were often typical, but in some cases there was a doubt as to whether the patient was suffering from an acute ulcer. He cited the case of a man who had been seized with violent pain, causing him to fall to the ground. The examination of a test meal revealed hyperacidity. There was severe melæna. The diagnosis of duodenal ulcer was made, and the patient was advised to undergo an operation to prevent recurrence. At the operation, no ulcer was found. The patient suffered from the symptoms for a long time. What he did have was an appendix so adherent to the caecum that it had to be resected with scissors. The patient was then dieted and treated with alkalies to diminish the hydrochloric acid. The symptoms had entirely disappeared. There

were often remarkable intermissions in these cases of ulcer. This was more frequent with duodenal ulcer, but occurred in gastric cases. They had all met with the case of a man with the symptoms of ulcer, including definite hunger pains. The patient became perfectly well after twenty-four hours, and no further trouble ensued. Later on, his nervous system became depressed and the symptoms recurred. An ulcer could not have healed in a night. Possibly the nervous factor was responsible. He instanced the case of a clergyman who had died of perforation of a duodenal ulcer. He had come to Australia and became quite well. He had returned to England and to work and became ill again. He then took a trip to Switzerland and recovered. He returned to England and died. Undoubtedly he must have had the ulcer all the time.

Dr. Wilkinson did not attach very much importance to radiological diagnosis of ulcer. It was unnecessary to use X-rays for the purpose of diagnosis when the symptoms were so typical that the ulcer was obvious. When the ulcer was not obvious, it was easy to be misled by the radiographic appearances. He did not believe the radiographer who asserted that he could diagnose every case by these means. When a test meal was employed in the course of the X-ray examination, assistance was obtained in the diagnosis of gastric ulcer. He considered that the diagnosis of duodenal ulcer was not justified in the absence of a distinct increase of hydrochloric acid in the gastric secretion, even when an X-ray examination had been made. It had been found after the abdomen had been opened that the actual condition was very different from that which had been diagnosed radiographically. He held the opinion that when the diagnosis was sufficiently definite to justify the case being referred to the surgeon, it was necessary to insist on a thorough survey of the whole of the abdomen. In cases of chronic dyspepsia, if a small opening were made and the appendix removed, the patient might be a little better for a time, but the symptoms would certainly recur later. An endeavour should be made to remove every possible source of future irritation, as well as the cause of the immediate symptoms. He could recall many cases in which, if the obviously diseased appendix had been removed and the unobvious gall-stones left behind, and vice versa, the patient's dyspepsia would have had little chance of being remedied.

Owing to the lateness of the hour, the discussion was adjourned at this stage.

Correspondence.

THE DUTY OF MEDICAL PRACTITIONERS.

Sir.—I agree with you in your reply to Dr. Tipping that there is no conflict of attitude when the lodge surgeons are asking for an increase of remuneration from 3d. to 5d. per week and an income limit of £208.

Dr. Tipping asks for a "deeper explanation," I ask Dr. Tipping for a "deeper explanation" of these words in his letter: "I am a single man, also an eligible (after I be patched up)." Does he mean eligible to be married? He feels he is doing his duty towards God; so do I; so does everybody who is working toward getting the Common Form of Agreement, and if need be we will resign our lodge appointments in order to get it. As one of those organizing the profession, I wish to complain right here that Dr. Tipping has broken a confidence in that he received a circular marked "confidential"; this was not even sent to you, sir, as editor of our *Journal*, so confidential was it to our Victorian members; yet Dr. Tipping sees fit to put it into print. So far as our attitude to humbler, and no less noble callings is concerned, these humbler callings have not been humble; they have, by Factories Acts, Arbitration Courts, strikes, and by other coercive measures secured a great increase in their remuneration; the employers (by combination among themselves) have passed on the increased cost of production to the consumer, therefore what was 3½d. per week in 1890 (when the rate of 14s. a year was fixed) is about 2d. now.

Must we for ever be turning the other cheek, so to speak? Is there not a kick left in us? Are we to submit to every increase in our cost of living without an increase in our conditions?

I am also a single man, also eligible; willingly would I obey the Divine command to take unto myself a wife, if the lodge remuneration were large enough for me to do so, or, rather, that I could reduce the size of my list (about 1,000 members), so that I could find time to get one.

Let Dr. Tipping gird up his loins and take heart, for we have the whole profession with us; we want his help, and from what I know of him, he will fall into line with his fellow-practitioners, and when we ask for resignations, he will be with his fellows.

At present lodge practice is intolerable, but when our requests are secured, our profession will be able to realize its ideal—the most sacred and most noble of all callings.

Yours, etc.,

D. ROSENBERG.

Richmond, Victoria,
July 21, 1917.

THE AUSTRALIAN ARMY MEDICAL CORPS COMFORTS FUND.

Sir.—Apropos of the miserable response to the special appeal for subscriptions to the A.M.C. Comforts Fund, it is possible that the members of our glorious and noble profession know nothing about the matter.

Why not enlighten them right away; make a clean breast of everything; there's no use beating about the bush; tell them the whole truth; rumours are not worth heeding, but this thing has gone so far now that even the newspapers are writing about it; tell them straight that there is a war on just now, and that amongst the various arms of military service that have left these shores for the scene of operations is one known as the Army Medical Corps, whose special duties are to succour the sick and the wounded.

Tell them also that this Corps is officered by the able-bodied members of our profession, who have left their practices to be carried on during their absence by their aged, infirm and less virile colleagues, who have nobly responded to the call of their God, King and country, and whose deeds of self-sacrifice and unselfish devotion to the interests of absent friends are thrilling the country from end to end. Let them know that the 500 officers and the 5,000 men comprising the Corps will probably be spending their next Xmas at the seat of war, and that the idea of the Comforts Fund is to provide something in the way of Xmas cheer for them.

Surely if these facts are made known to the gallant men to whom this appeal is addressed, your subscription list will bear a very much healthier aspect.

Yours, etc.,

"RIP VAN WYNKLE."

FREE ATTENDANCE ON SCHOOL CHILDREN.

Sir.—Very few people have been subjected to as much misrepresentation as I have during the last few years. I have been unable to reply to much of this misrepresentation, because it would have necessitated dealing publicly with Government policy, which civil servants are not allowed to do. Now, by the irony of fate, I am almost accused of being the dictator of Government policy. Dr. Worrall, in his letter appearing in the *Journal* of the 28th July, 1917, states:

"In an official interview with the Honorary Secretary of the Sydney Hospital Medical Staff (Dr. Ritchie), Dr. Willis said he was determined not to allow any inquiry into the financial circumstances of the parents of children attending the Hospital Clinics for School Children. . . ."

Dr. Worrall has either been misinformed or has misunderstood the information conveyed to him, as the above statement is quite incorrect. It is not a question of what I will or will not allow. That is for the Government to decide. What I said in reply to a question from Dr. Ritchie was: "I did not think the Government would agree to the financial circumstances of the parents being inquired into." I am

sure Dr. Worrall will be only too glad to have this correction published.

I am informed that misunderstandings unfortunately have arisen in other directions concerning what was said at the above mentioned interview, but as this is only hearsay, I am unable to make any reply.

Yours, etc.,

C. SAVILL WILLIS,

Principal Medical Officer.

Department of Education, New South Wales,
Medical Branch, Sydney,
28th July, 1917.

Sir,—My previous letter on the above subject has been more than justified by the most recent utterance of the Minister for Education.

Speaking at the Health Conference on the 25th July, Mr. James said, in my hearing, "With reference to the question of the free treatment of children whose parents could afford to pay, he could make no difference in the schools. If it became a question of pauperizing certain scholars and losing the assistance of the British Medical Association, he was afraid he would lose the services of the Association." He said, further, that as this would entail additional expense on the hospitals, he would try to get the grant to them supplemented.

Now I regarded this as a direct challenge to the medical profession, and as I had the opportunity of speaking next, said that I could not agree for a moment that public money should be utilized to supply free medical attendance to the children of the well-to-do, that this would be a crying scandal, and that I hoped that the British Medical Association would not submit to it.

The need, therefore, for a general meeting of the Branch to consider the matter is more urgent than ever.

It would be far better for the Council to take the initiative and convene the meeting rather than be compelled to do so by a requisition from the members. I trust now that the Minister has thrown down the gauntlet that there will not be the slightest delay in picking it up.

Yours, etc.,

RICHARD ARTHUR.

211 Macquarie Street,
July 30, 1917.

THE B.M.A. REFERENDUM.

Sir,—The object of this letter is to urge to action those members who object to the Association being used for political purposes, and diverted from and to objects for which it was and was not established; and who resent the irregular and improper conduct of the Federal Committee. Presumably many object to the Association being exploited in the interests of the Liberal Association, and used as a cat's paw in the cause of reaction and political intrigue. If those responsible for these suspicious tactics want to further their evil designs, they can keep to and act through their political organizations and not scheme to drag the Association into such doubtful company. The Association was founded as a non-political body for quite different objects to these.

The subject of, and manner of taking this referendum was not only quite outside the province of the Federal Committee but indeed of the Association itself, because contrary to the rules and spirit of its constitution. But the matter has not even been before or referred to the Branches for consideration; little less has it "had the approval of a majority of the Branches." In any case such proceedings would be *ultra vires*. The Association seems to be run by a few city cliques. Who brought this subject before the committee and by what authority, and who authorized its consideration by the committee? What right has the committee to make rules about a three-fourths majority? What right has any body of 12 men on its own to lay down conditions for directing its chairman to do this or that; or to authorize on its own initiative, without the instructions and ratification of the Branches, a political referendum not only on a subject of such importance and far-reaching consequences, but on one quite outside its and the Association's power? I consider the matter has been rushed and bludgeoned through in a most improper and secretive manner.

It is also about time the members refused to be used as a registering machine for a coterie, and put some of the would-be dictators in their proper places. There is too much of the Prussianizing spirit about. Is the Association to be democratically run by all its members or not? Is it to remain a medical or become a political society?

But, not only are these discriminating intrigues objectionable in themselves, they are subversive of the letter and spirit of the national constitution and the principles of democracy. Again, what right has the B.M.A. over non-members?

I suggest that those members who object to these methods meet on Tuesday next, at 8.30 p.m., at 140 Elizabeth Street, Sydney (otherwise write at once and indicate their willingness to co-operate), with a view to taking action.

Yours, etc.,

G. S. THOMPSON.

July 24, 1917.

[Dr. Thompson should study the constitution of the British Medical Association before indulging in a diatribe on its medico-political activity. It is indeed curious that Dr. Thompson, who was present and spoke at the meeting of the New South Wales Branch of the Association when the resolution of that Branch was considered before being sent to the Federal Committee, should make the bold assertion that the matter had not even been before the Branches for consideration and approval. It is unnecessary to examine the letter in detail, since every sentence contains an obvious mis-statement and an equally obvious absurdity. We would impress upon Dr. Thompson two facts. The first is that the principle of a true democracy is that the wishes of the majority must be accepted by the minority. The second is that every unmarried practitioner of military age is required for service overseas. Perhaps Dr. G. S. Thompson will find that the cap fits.]

Books Received.

SURGICAL THERAPEUTICS AND OPERATIVE TECHNIQUE, by E. Doyen, English edition, prepared by the author in collaboration with H. Spencer-Browne, M.B.; 1917. London: Ballière, Tindall and Cox. Volume 1; large Royal 8vo., pp. 746, with 1038 illustrations. Price, 25s. net.

HANDBOOK OF ANATOMY FOR STUDENTS OF MASSAGE, by Margaret E. Björkegren; second edition; 1917. London: Ballière, Tindall and Cox. Demy 8vo., pp. 233, with 73 illustrations. Price, 5s. net.

PHYSICAL REMEDIES FOR DISABLED SOLDIERS, by R. Fortescue Fox, M.D., with chapters by Major R. Tait McKenzie, R.A.M.C., Francis Hermann-Johnson, M.D., and James B. Menell, M.A., M.D.; 1917. London: Ballière, Tindall and Cox. Demy 8vo., pp. 277, illustrated. Price, 7s. 6d. net.

THE INTENSIVE TREATMENT OF SYPHILIS AND LOCOMOTOR ATAXIA BY AACHEN METHODS, by Reginald Hayes, M.R.C.S.; second edition, revised; 1917. London: Ballière, Tindall and Cox. Crown 8vo., pp. 88, illustrated. Price, 3s. 6d. net.

ANÆSTHETICS: A PRACTICAL HANDBOOK, by J. Blomfield, M.D.; fourth edition; 1917. London: Ballière, Tindall and Cox. Crown 8vo., pp. 147, illustrated. Price, 4s. net.

THE PRACTICAL MEDICINE SERIES, under the general editorial charge of Charles L. Mix, A.M., M.D., Volume II., General Surgery, edited by Albert J. Ochsner, M.D., F.R.M.S., L.L.D., F.A.C.S.; 1917 Series. Chicago: The Year Book Publishers. Melbourne: Stirling and Co. Crown 8vo., pp. 608, illustrated. Price, 8s. 6d.

THE MEDICAL ANNUAL: A YEAR BOOK OF TREATMENT AND PRACTITIONER'S INDEX; 1917, thirty-fifth year. Bristol: John Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Demy 8vo., pp. 787. Price, 1s. net, post free.

THE ELEMENTS OF HYGIENE AND PUBLIC HEALTH, a Textbook for Students and Practitioners of Medicine, by Charles Porter, M.D., B.Sc., M.R.C.P.; 1917. London and Oxford: Oxford University Press. Melbourne: E. R. Bartholomew. Crown 8vo., pp. 411, with 98 illustrations. Price, 12s. 6d.

WORKMEN'S COMPENSATION ACT, 1916, No. 71, AND REGULATIONS (with Index), RULES OF COURT, FORMS AND FEES (with Index), issued under the Editorship of G. W. Waddell, M.A., L.L.D., and F. L. V. Coffey, B.A., L.L.B.; 1917. Sydney: Butterworth and Co. (Australia) Ltd. Royal 8vo., pp. 129. Price, 10s. 6d.

Proceedings of the Australasian Medical Boards.

VICTORIA.

The following have been registered under the provisions of Part I. of the "Medical Act, 1915," as duly qualified practitioners:—

Farrell, John Patrick, M.B., Ch.B., Melb., 1917, "Ingle-side," Beach-road, Beaumaris.

Younger, Isabella Henrietta, M.B., Ch.B., Glas., 1914,
109 Collins-street, Melbourne.

The following names of deceased practitioners have been removed from the Register:—

Homan, Andrew Victor.
O'Sullivan, Michael Ullick.

QUEENSLAND.

The following have been registered under the provisions of the "Medical Act of 1867" as duly qualified medical practitioners:—

Lavery, John Anthony, B.A., Taroom, L.R.C.P. and L.R.C.S., Edin., L.F.P.S., Glasg., L.M., 1895.
Lording, Howard Woodruff, Mackay, M.B., Ch.B., Univ. Melb., 1916.
O'Reilly, Olive Kelynack, General Hospital, Brisbane, M.B., Univ. Syd., 1915.
Story, Alfred Cuthbert, Brisbane, L.S.A., Lond., 1904.
Talbot, John Richard, Toowoomba, L.R.C.P., L.R.C.S., Irel., 1908.
Turnbull, Frederick Charles, Brisbane, M.R.C.S., Eng., L.R.C.P., Lond., 1913.

Medical Appointments.

Dr. Annie Susan Robertson has resigned her position as Medical Officer, Department of Education, New South Wales. Last day of service, June 16, 1917.

Dr. J. Yeatman has been appointed Medical Officer to the Council of Waterloo, South Australia.

The appointment of Dr. Tanco as Officer of Health to the Council of Loxton, South Australia, is announced in *The South Australian Government Gazette* of July 19, 1917.

Dr. Charles Reginald Palmer has been appointed Government Medical Officer at Bulli, New South Wales, in place of Dr. J. L. B. Dixon.

Dr. J. Thompson has resigned his position as Medical Officer of Health, Maryland, and Dr. S. J. Cantor has been appointed in his stead.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

Ararat Hospital and Benevolent Asylum, Resident Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
TASMANIA. (Hon. Sec., Belgrave, Tasmania.)	Medical Officers in all State-aided Hospitals in Tasmania.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Medical Officers to the Selwyn Hospital, North Queensland. Brisbane United Friendly Society Institute. Warwick Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Penrith, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Aug. 9.—Vic. Branch, B.M.A., Council.
Aug. 10.—N.S.W. Branch, B.M.A., Clinical.
Aug. 10.—S. Aust. Branch, B.M.A., Council.
Aug. 14.—Tas. Branch, B.M.A., Council and Branch.
Aug. 14.—N.S.W. Branch, B.M.A., Ethics Committee.
Aug. 15.—W. Aust. Branch, B.M.A., Branch.
Aug. 15.—Western Suburbs Med. Assoc. (N.S.W.).
Aug. 16.—North Eastern Med. Assoc. (N.S.W.).
Aug. 16.—City Med. Assoc. (N.S.W.).
Aug. 21.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Aug. 24.—Q. Branch, B.M.A., Council.
Aug. 28.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Aug. 29.—Vic. Branch, B.M.A., Council.
Aug. 30.—S. Aust. Branch, B.M.A., Branch.
Aug. 31.—N.S.W. Branch, B.M.A., Branch (Ordinary).

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.